FCC TEST REPORT (WLAN-15.407)

REPORT NO.:	RF120720E01-1
MODEL NO.:	QCA9005
FCC ID:	PPD-QCA9005
IC:	4104A-QCA9005
RECEIVED:	July 20, 2012
TESTED:	Sep. 21 to 26, 2012
ISSUED:	Oct. 09, 2012

APPLICANT:	Qualcomm Atheros, Inc.
ADDRESS:	1700 Technology Drive, San Jose, CA 95110

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS :	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120720E01-1	Original release	Oct. 09, 2012

1. CERTIFICATION

PRODUCT:	2x2 802.11a/b/g/n/ad +BT module
BRAND NAME:	Qualcomm Atheros
MODEL NO.:	QCA9005
TEST SAMPLE:	R&D SAMPLE
APPLICANT:	Qualcomm Atheros, Inc.
TESTED:	Sep. 21 to 26, 2012
STANDARDS:	FCC Part 15, Subpart E (Section 15.407)
	ANSI C63.10-2009
	Canada RSS-210 Issue 8 (2010-12)
	Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: QCA9005) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____, **DATE:** Oct. 09, 2012
(Midoli Peng, Specialist)

APPROVED BY : _____, **DATE:** Oct. 09, 2012
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.407(b)(6)	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -15.47dB at 0.18906MHz
15.407(b/1/2/3) (b)(6)	RSS-210 A9.2	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5725.0MHz
15.407 (a/1/2)	RSS-210 A9.2	Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	RSS-210 A9.2	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407 (a/1/2)	RSS-210 A9.2 A9.4 (2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	RSS-Gen 4.7	Frequency Stability	PASS	Meet the requirement of limit.
-	RSS-Gen 4.6	Occupied Bandwidth Measurement	-	Meet the requirement.
15.203	-	Antenna Requirement	PASS	Antenna connector is IPEX not a standard connector.

NOTE: For WLAN: The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.84 dB
Radiated emissions (6GHz -18GHz)	4.09 dB
Radiated emissions (18GHz -40GHz)	4.24 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	2x2 802.11a/b/g/n/ad +BT module
MODEL NO.	QCA9005
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK(BT <LE> mode) for DTS
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n (HT20, 800ns GI): up to 130Mbps 802.11n (HT20, 400ns GI): up to 144.4Mbps 802.11n (HT40, 800ns GI) : up to 270Mbps 802.11n (HT40, 400ns GI) : up to 300Mbps BT-LE(GFSK): 1Mbps
OPERATING FREQUENCY	**For 15.407** 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.745 ~ 5.825GHz BT-LE(GFSK): 2.402 ~ 2.480GHz
NUMBER OF CHANNEL	**For 15.407** 16 for 802.11a, 802.11n (HT20) 7 for 802.11n (HT40)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) 40 for BT-LE(GFSK) **For 15.247(5GHz)** 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)

MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 27.438mW 802.11n (HT20): 24.198mW 802.11n (HT40): 22.001mW **For 15.247(2.4GHz)** 802.11b: 119.519mW 802.11g: 342.212mW 802.11n (HT20): 387.794mW 802.11n (HT40): 164.459mW BT-LE(GFSK): 2.679 mW **For 15.247(5GHz)** 802.11a: 109.921mW 802.11n (HT20): 118.894mW 802.11n (HT40): 102.681mW
ANTENNA TYPE	See item 3.2
ANTENNA CONNECTOR	See item 3.2
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are Bluetooth technology and WLAN technology used for the EUT. And the report number corresponds with EUT functions are listed as below:

Function	Report No.
WLAN / BT(LE MODE)	RF120720E01 (15.247) RF120720E01-1(15.407) RF120720E01-3(DFS)
Bluetooth	RF120720E01-2
For 60GHz test data of the product please refer to CCS REPORT NUMBER: 12U14501-1	

2. The device has below configurations

Working mode	chain 0	chain 1	Note
1X1+BT	11a/b/g/n (MCS0~7)	BT	WLAN/BT concurrent
2X2+BT	11a/n (MCS0~15)	11a/n (MCS0~15)+ BT	WLAN/BT concurrent only when WLAN is 802.11an.
2x2 WLAN only	11a/b/g/n (MCS0~15)	11a/b/g/n (MCS0~15)	-

3. Spurious Emission (radiated emission) of the simultaneous operation (WiFi & Bluetooth) have been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology
2.4 GHz (802.11n (HT20)) + Bluetooth	1 to 11	11	OFDM
	0 to 78	0	FHSS
5 GHz (802.11n (HT20)) + Bluetooth	149 to 165	165	OFDM
	0 to 78	0	FHSS

4. The EUT is 2 * 2 MIMO with 802.11n beam forming function.

MODULATION MODE	Tx/Rx FUNCTION
802.11b	1Tx/1Rx or 2Tx/2Rx
802.11g	1Tx/1Rx or 2Tx/2Rx
802.11a	1Tx/1Rx or 2Tx/2Rx
802.11n (HT20)	2Tx/2Rx
802.11n (HT40)	2Tx/2Rx

The maximum compliance powers listed on the report are compliance with both Beam Forming and non-Beam Forming configurations.

5. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
Mode B	**800ns GI**

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF ANTENNA

The antenna provided to the EUT, please refer to the following table:

Antenna 1								
Brand	Model	Antenna Type	Peak gain with cable loss 2.4G(dBi)	Peak gain with cable loss 5G(dBi)	Cable Loss 2.4G(dB)	Cable Loss 5G(dB)	Connector Type	Cable Length (mm)
WNC	81.EBJ15.005	PIFA	3.62	Band 1&2: 3.08 Band 3: 4.76 Band 4: 4.76	1.15	Band1&2: 1.70 Band 3: 1.74 Band 4: 1.79	IPEX	300
Antenna 2								
Brand	Model	Antenna Type	Peak gain with cable loss 2.4G(dBi)	Peak gain with cable loss 5G(dBi)	Cable Loss 2.4G(dB)	Cable Loss 5G(dB)	Connector Type	Cable Length (mm)
WNC	81.ED415.001	PIFA	1.48	Band 1&2: 5.56 Band 3: 5.34 Band 4: 3.14	0.96	Band1&2: 1.29 Band 3: 1.36 Band 4: 1.38	IPEX	300

Note: 1. Above antenna gains of antenna are Total (H+V).
2. All of antenna can be application for WLAN and Bluetooth.
3. Antenna (model: 81-EBJ15.005) was chosen for Bluetooth, 2.4GHz & 5GHz (Band 4) final test.
4. Antenna (model: 81.ED415.001) was chosen for 5GHz (Band 1~3) final test.

3.3 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

Eight channels are provided for 802.11a and 802.11n (HT20):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

Four channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz
54	5270 MHz
62	5310 MHz

Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Eight channels are provided for 802.11a and 802.11n (HT20):

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

Three channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz

3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
-	√	√	√	√	-

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

NOTE: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**

POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
For 5 GHz 802.11n (HT20)	36 to 140	64	OFDM	6

RADIATED EMISSION TEST (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
For 5 GHz 802.11n (HT20)	36 to 140	64	OFDM	6

RADIATED EMISSION TEST (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6
For 5 GHz 802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6.5
For 5 GHz 802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	13.5

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6
For 5 GHz 802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6.5
For 5 GHz 802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	26deg. C, 62%RH	120Vac, 60Hz	JyunChun Lin
RE<1G	23deg. C, 63%RH	120Vac, 60Hz	Robert Cheng
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Nelson Teng

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

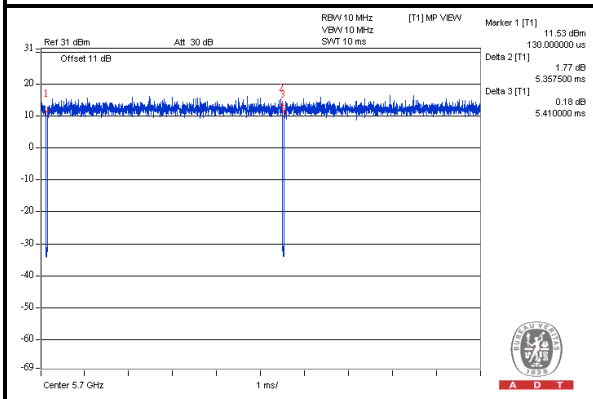
FCC Part 15, Subpart E (Section 15.407)
789033 D01 General UNII Test Procedures v01r01
ANSI C63.10-2009
Canada RSS-210 Issue 8 (2010-12)
Canada RSS-Gen Issue 3 (2010-12)

All test items have been performed and recorded as per the above standards.

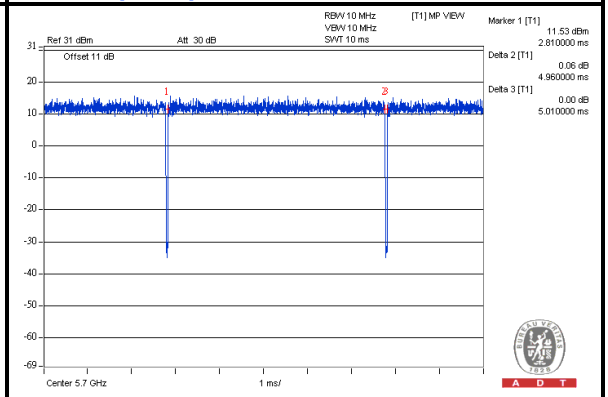
3.5 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is 100 % > 98 %, duty factor is not required.

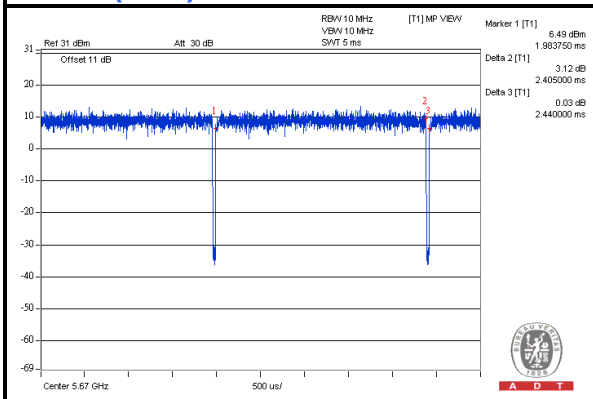
802.11a



802.11n (HT20)



802.11n (HT40)



3.6 DESCRIPTION OF SUPPORT UNITS

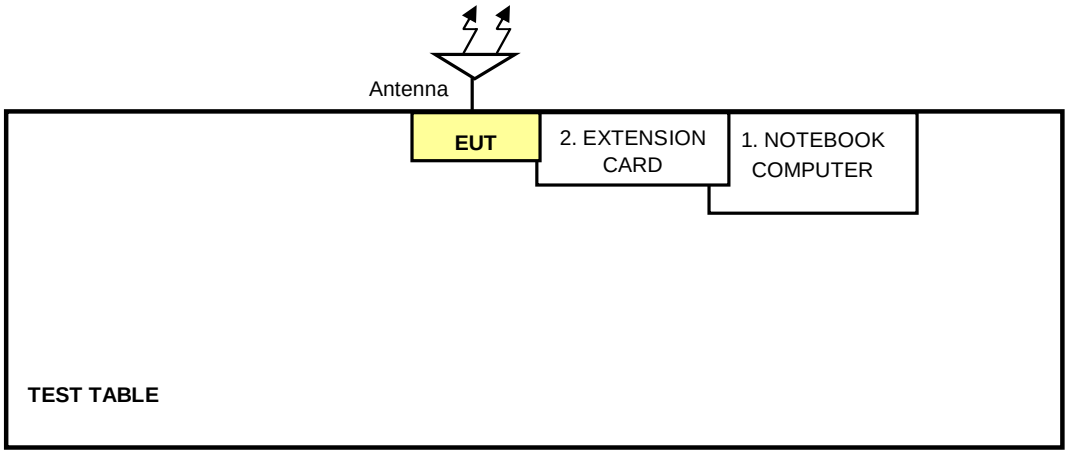
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	EXTENSION CARD	Qualcomm Atheros	NA	NA	NA

No.	Signal cable description
1	NA
2	NA

Note: The power cords of the above support units were unshielded (1.8m).

3.7 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 TRANSMIT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: 1. Where B is the 26dB emission bandwidth in MHz for FCC 15.407.
2. Where B is the 99% bandwidth in MHz for RSS-210 Annex 9.

4.1.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Average Power Sensor	MA2411B	0738172	May 10, 2012	May 09, 2013

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

4.1.3 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

FOR 26dB BANDWIDTH

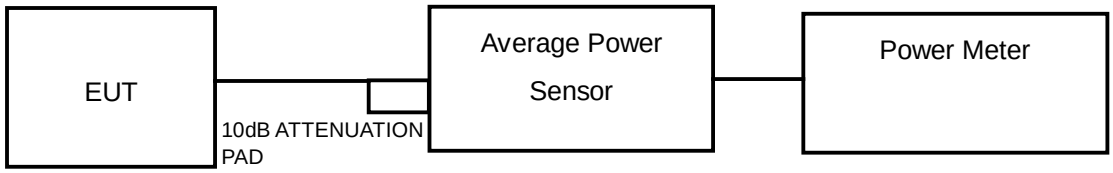
1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.1.4 DEVIATION FROM TEST STANDARD

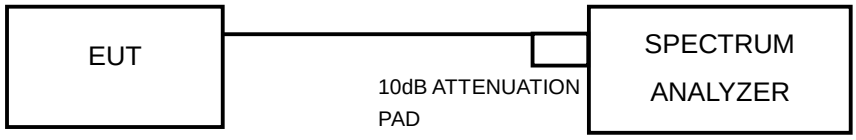
No deviation

4.1.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.1.6 EUT OPERATING CONDITIONS

The software(artgui.exe [art2_ver_3_14_Jupiter]) provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.1.7 TEST RESULTS

802.11a

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.5	12.1	27.438	14.38	14.43	PASS
40	5200	10.1	11.8	25.369	14.04	14.43	PASS
48	5240	9.8	11.5	23.675	13.74	14.43	PASS
52	5260	10.3	10.5	21.935	13.41	21.43	PASS
60	5300	10.3	10.6	22.197	13.46	21.43	PASS
64	5320	10.1	10.3	20.948	13.21	21.43	PASS
100	5500	10.3	10.2	21.186	13.26	21.65	PASS
116	5580	10.2	10.4	21.436	13.31	21.65	PASS
132	5660	10.3	11.8	25.851	14.12	21.65	PASS
140	5700	9.6	12.0	24.969	13.97	21.65	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

802.11a

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	21.80	31.09
40	5200	20.85	31.93
48	5240	21.55	26.77
52	5260	22.26	23.81
60	5300	21.32	24.90
64	5320	21.84	23.26
100	5500	22.20	27.63
116	5580	21.45	30.08
132	5660	22.32	31.28
140	5700	22.43	29.51

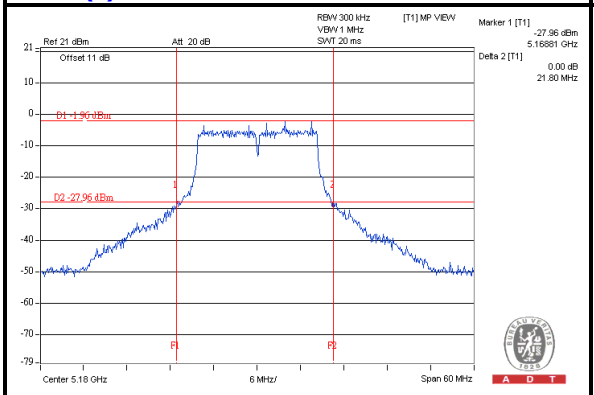
Note: For FCC output power limitation is determined based on 26dB bandwidth.

a.5150~5250MHz: 17.19dBm > 14.43dBm
b.5250~5350MHz: 17.29dBm > 14.43dBm
c. 5470~5725MHz: 24.31dBm > 21.65dBm

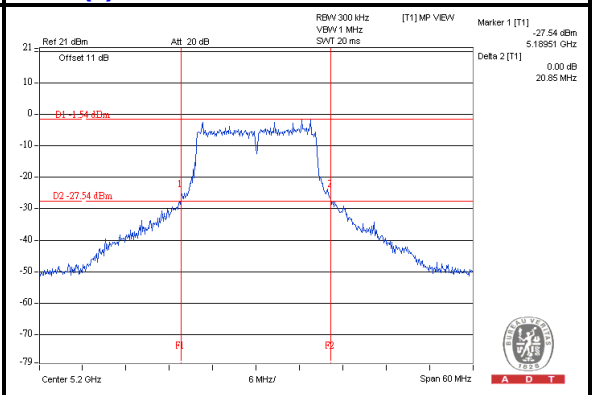
Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a.5150~5250MHz: 16.19dBm > 14.43dBm
b.5250~5350MHz: 23.19dBm > 14.43dBm
c. 5470~5725MHz: 23.19dBm > 21.65dBm

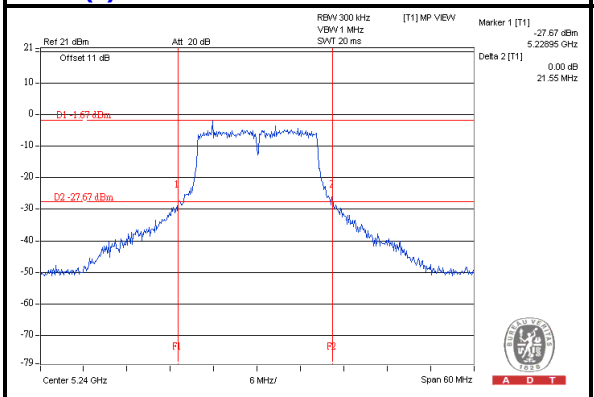
Chain(0) : CH36



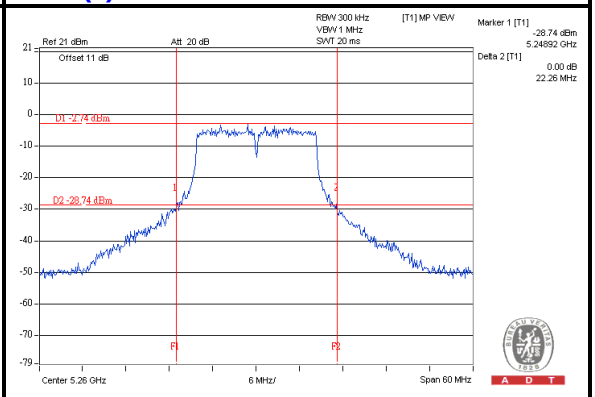
Chain(0) : CH40



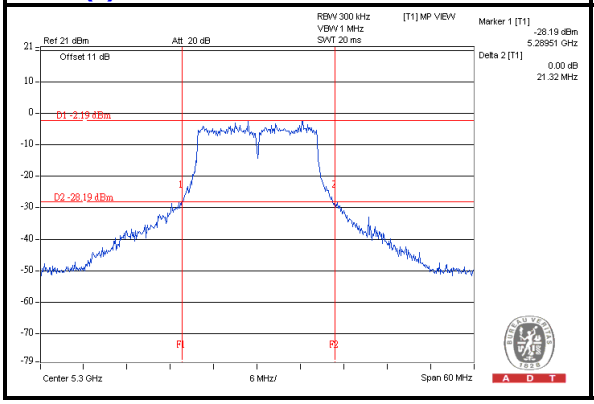
Chain(0) : CH48



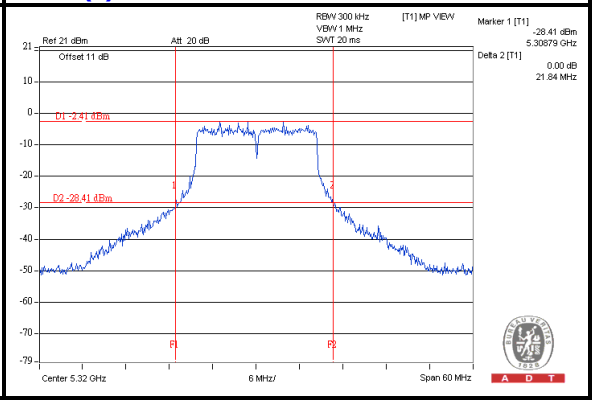
Chain(0) : CH52



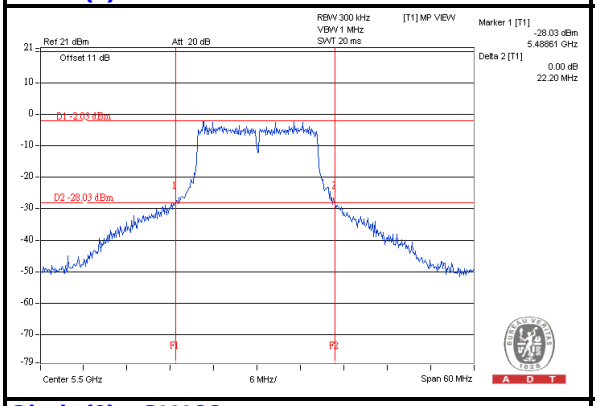
Chain(0) : CH60



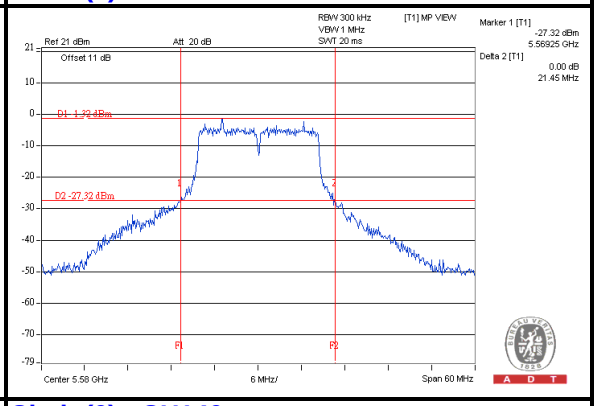
Chain(0) : CH64



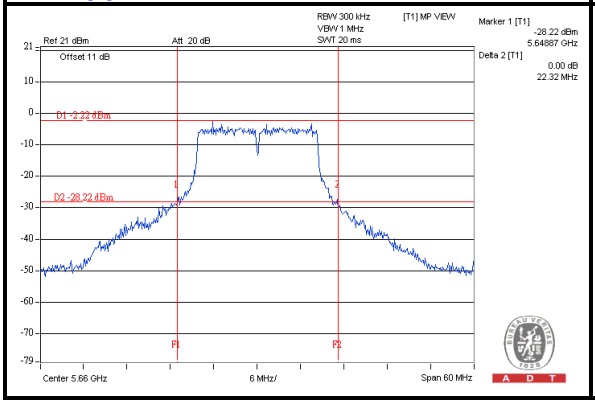
Chain(0) : CH100



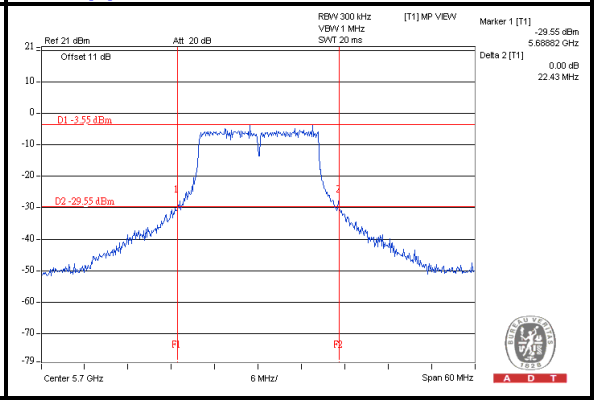
Chain(0) : CH116



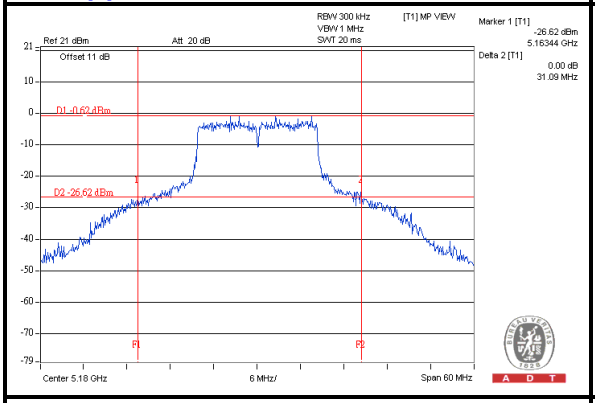
Chain(0) : CH132



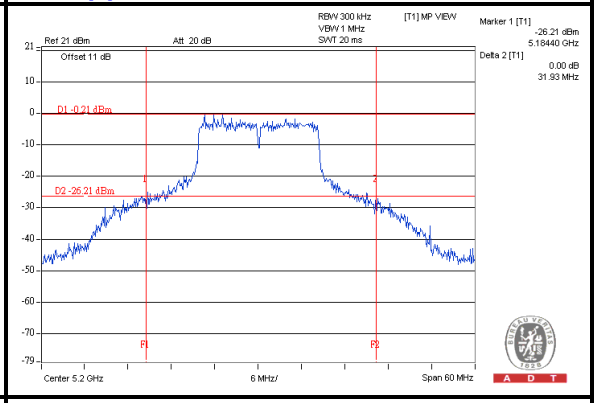
Chain(0) : CH140



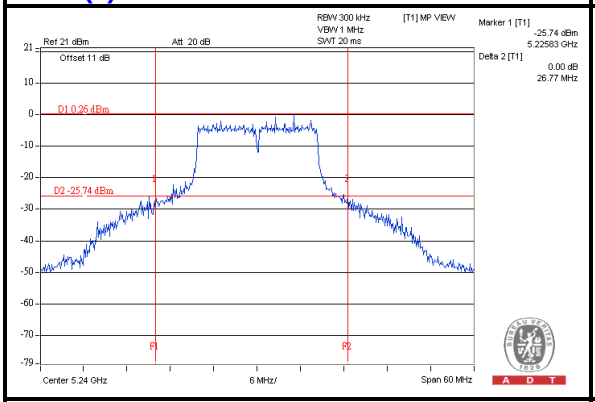
Chain(1) : CH36



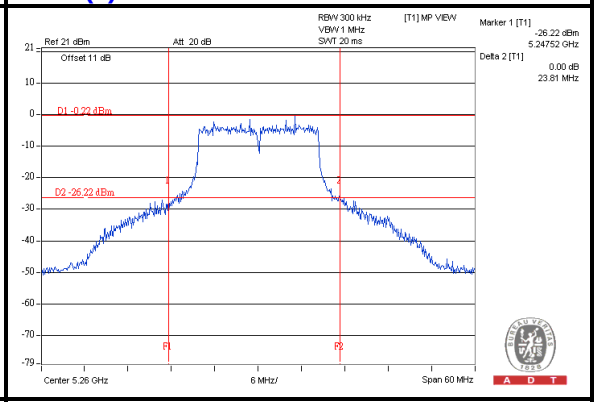
Chain(1) : CH40



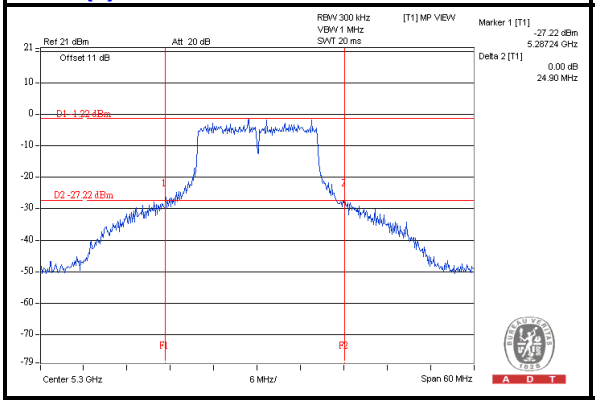
Chain(1) : CH48



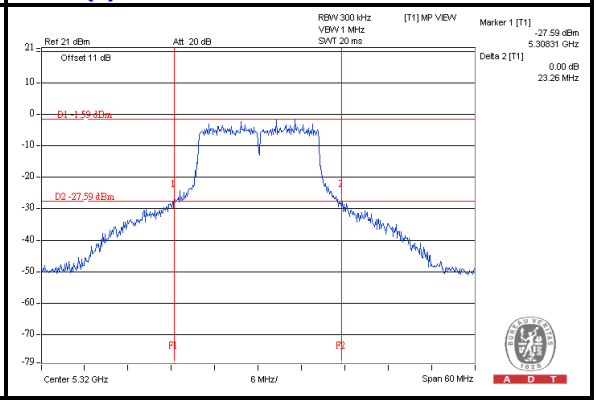
Chain(1) : CH52



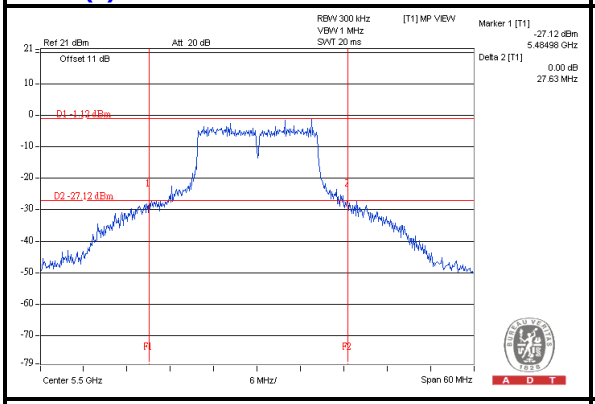
Chain(1) : CH60



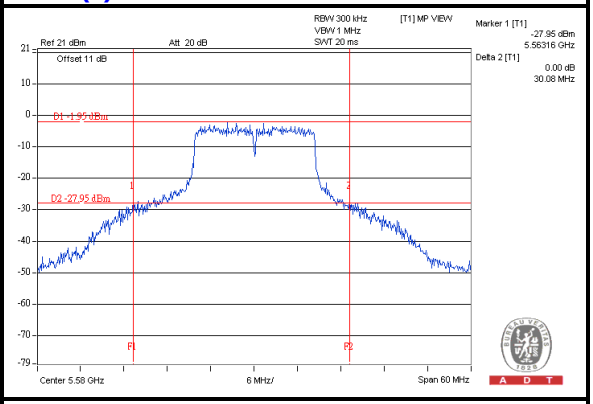
Chain(1) : CH64



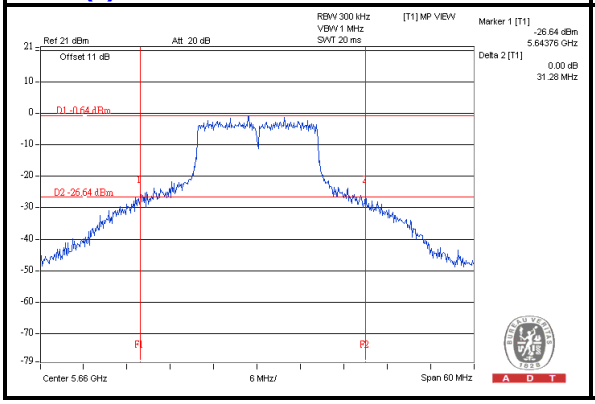
Chain(1) : CH100



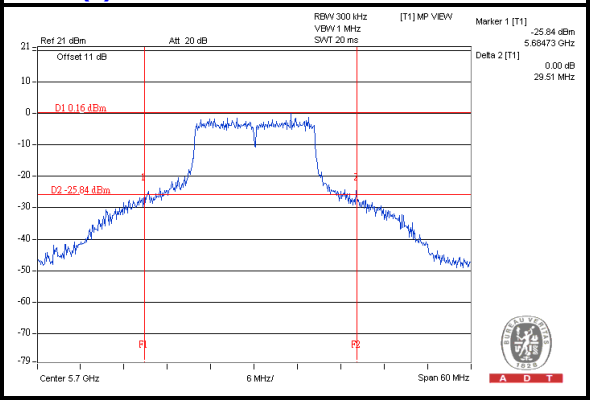
Chain(1) : CH116



Chain(1) : CH132



Chain(1) : CH140



802.11n (HT20)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	9.5	10.9	21.216	13.27	14.43	PASS
40	5200	9.4	11.0	21.299	13.28	14.43	PASS
48	5240	9.3	10.6	19.993	13.01	14.43	PASS
52	5260	9.2	9.9	18.090	12.57	21.43	PASS
60	5300	9.2	9.3	16.829	12.26	21.43	PASS
64	5320	9.4	9.4	17.420	12.41	21.43	PASS
100	5500	9.3	9.7	17.844	12.51	21.65	PASS
116	5580	9.2	9.8	17.868	12.52	21.65	PASS
132	5660	9.4	11.0	21.299	13.28	21.65	PASS
140	5700	9.4	11.9	24.198	13.84	21.65	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

802.11n (HT20)

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	22.25	27.23
40	5200	21.81	29.91
48	5240	22.23	26.07
52	5260	22.18	24.53
60	5300	21.84	22.83
64	5320	22.31	22.97
100	5500	22.41	24.52
116	5580	21.36	24.91
132	5660	22.05	25.50
140	5700	21.59	28.67

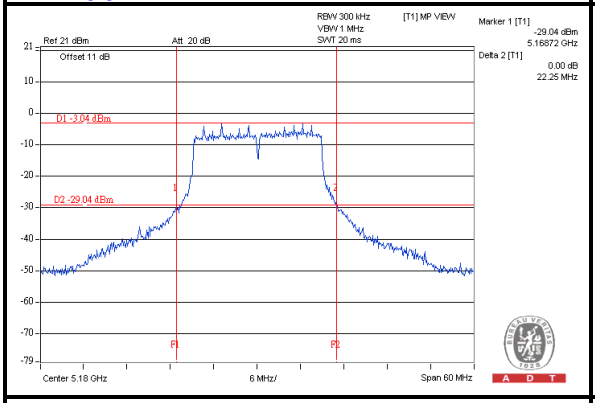
Note: For FCC output power limitation is determined based on 26dB bandwidth.

a.5150~5250MHz: 17.39dBm > 14.43dBm
b.5250~5350MHz: 17.39dBm > 14.43dBm
c. 5470~5725MHz: 24.30dBm > 21.65dBm

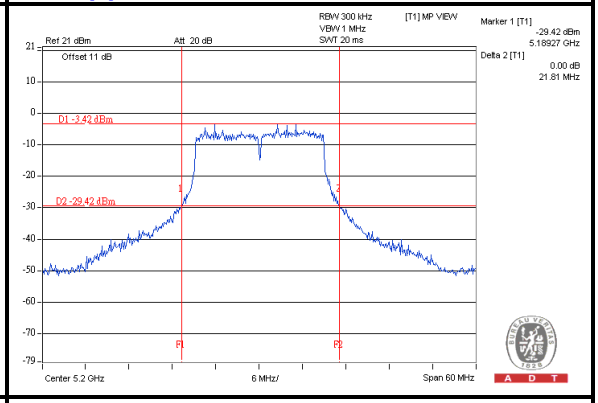
Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a.5150~5250MHz: 16.49dBm > 14.43dBm
b.5250~5350MHz: 23.49dBm > 14.43dBm
c. 5470~5725MHz: 23.49dBm > 21.65dBm

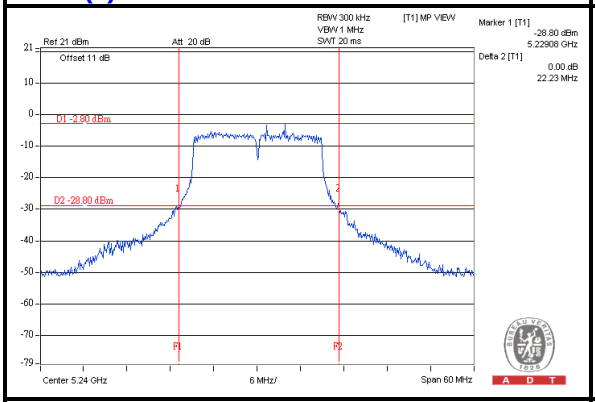
Chain(0) : CH36



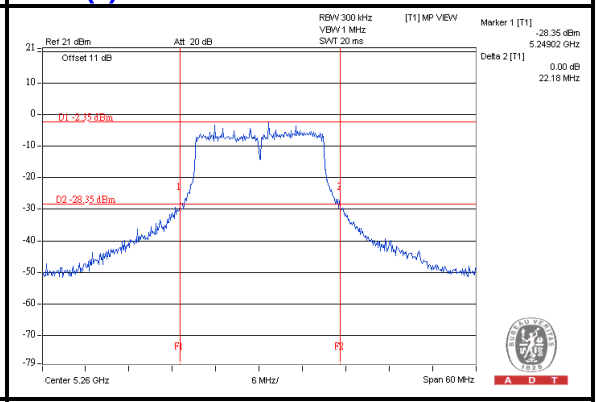
Chain(0) : CH40



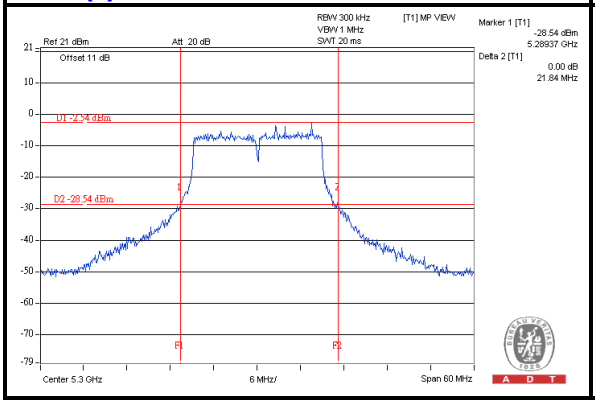
Chain(0) : CH48



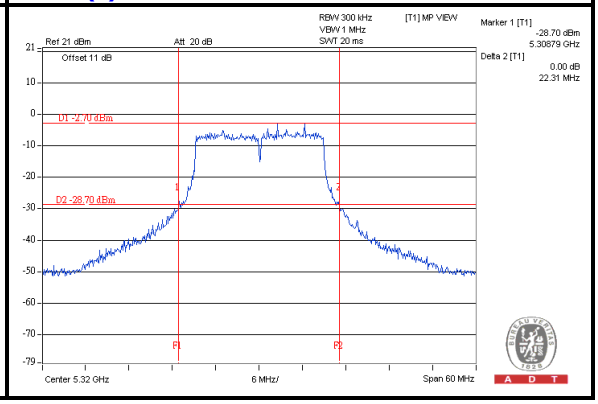
Chain(0) : CH52



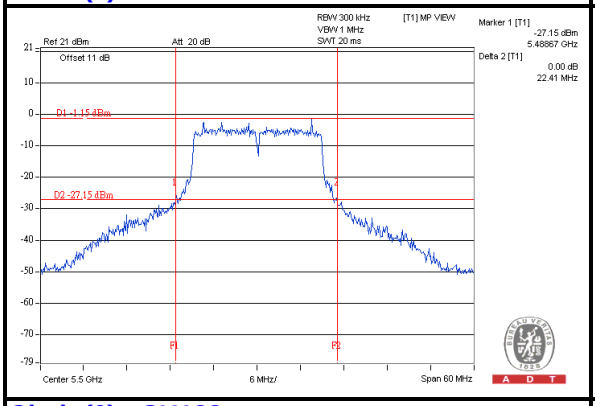
Chain(0) : CH60



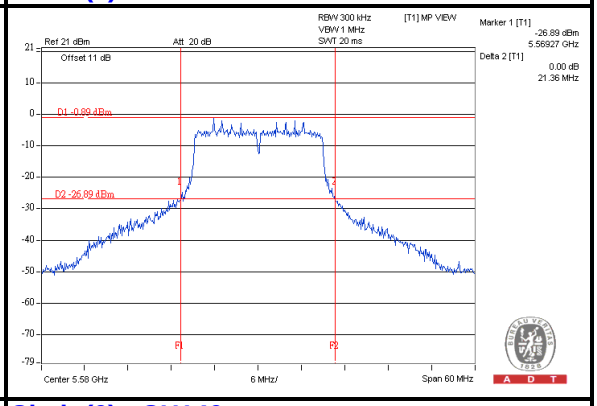
Chain(0) : CH64



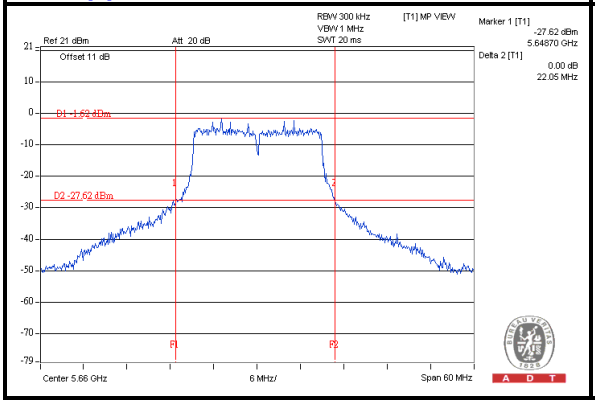
Chain(0) : CH100



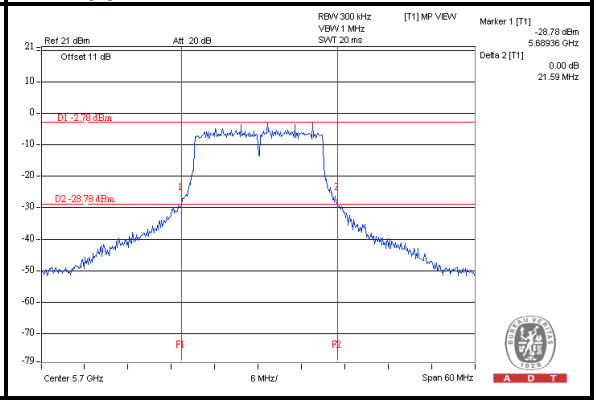
Chain(0) : CH116



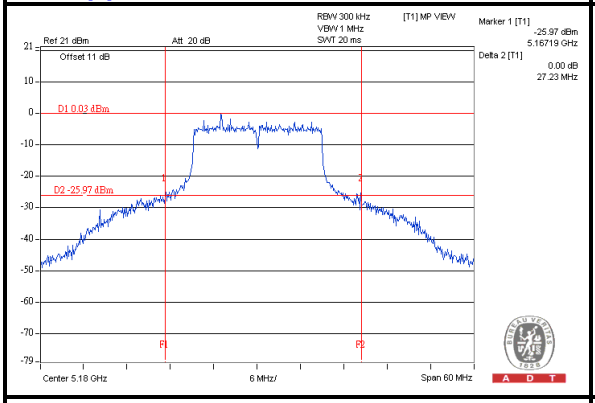
Chain(0) : CH132



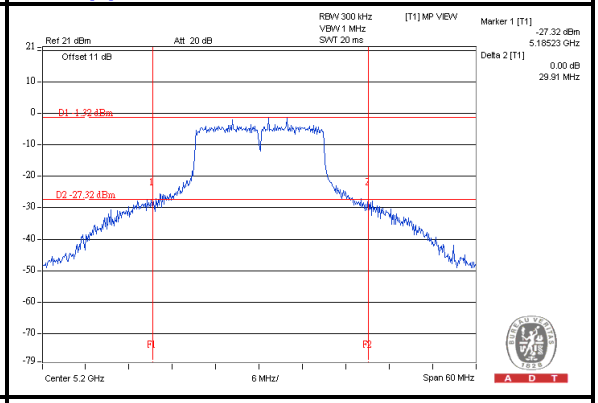
Chain(0) : CH140



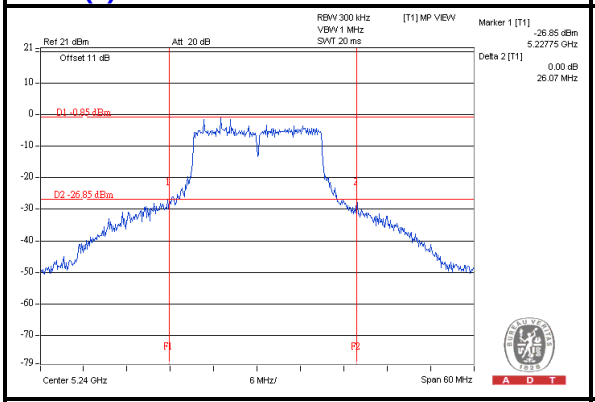
Chain(1) : CH36



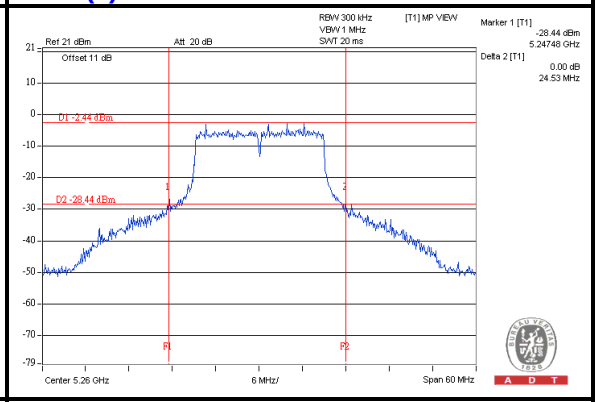
Chain(1) : CH40



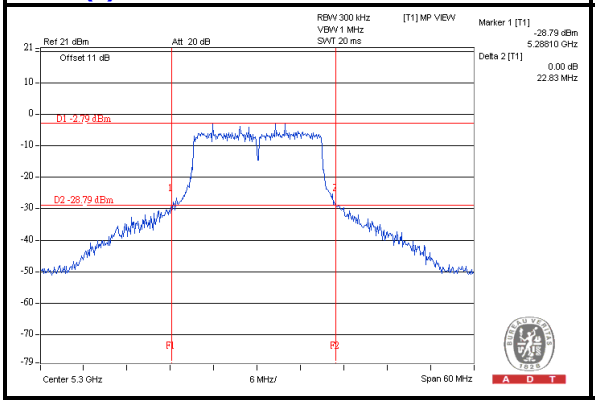
Chain(1) : CH48



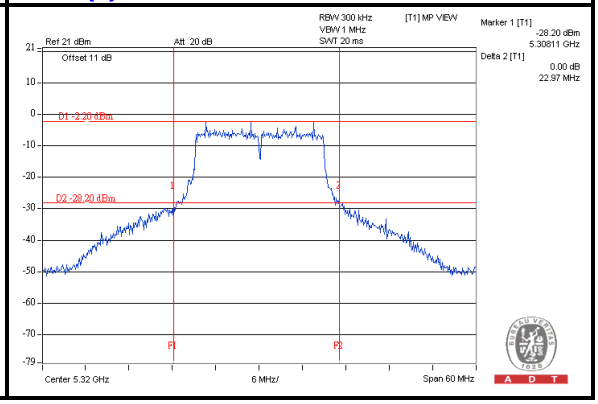
Chain(1) : CH52



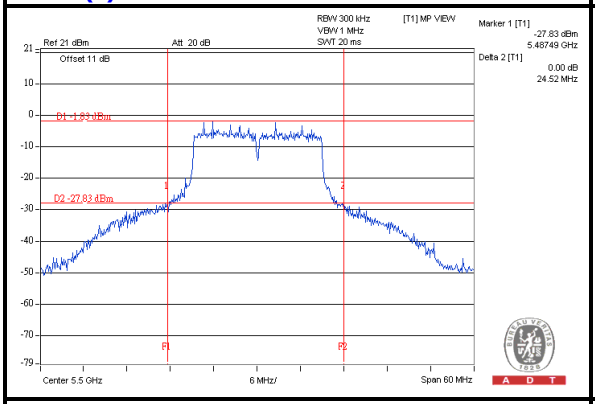
Chain(1) : CH60



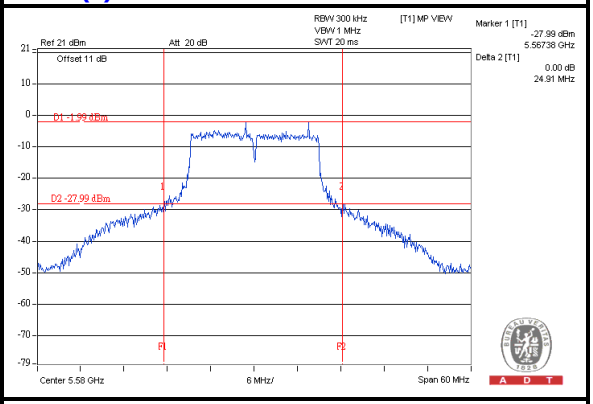
Chain(1) : CH64



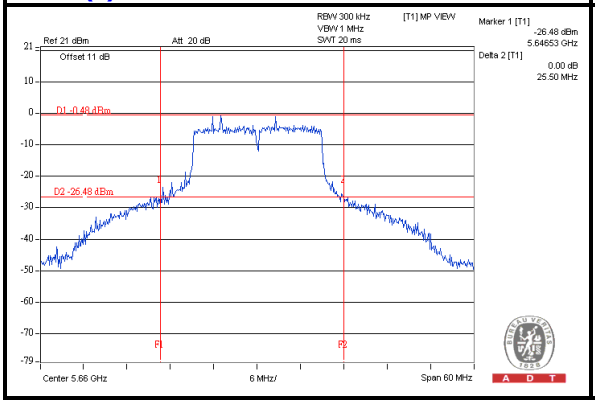
Chain(1) : CH100



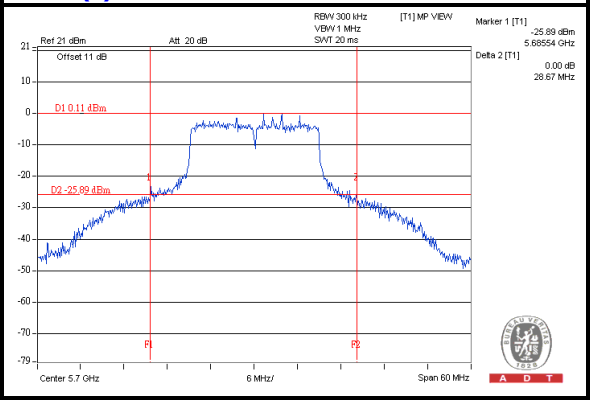
Chain(1) : CH116



Chain(1) : CH132



Chain(1) : CH140



802.11n (HT40)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	8.0	9.8	15.860	12.00	14.43	PASS
46	5230	9.2	10.6	19.800	12.97	14.43	PASS
54	5270	9.2	9.7	17.651	12.47	21.43	PASS
62	5310	9.3	9.2	16.829	12.26	21.43	PASS
102	5510	6.8	6.8	9.572	9.81	21.65	PASS
110	5550	9.3	9.7	17.844	12.51	21.65	PASS
134	5670	9.3	11.3	22.001	13.42	21.65	PASS

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

802.11n (HT40)

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	43.66	49.28
46	5230	44.33	57.32
54	5270	44.87	48.85
62	5310	43.97	47.46
102	5510	43.66	45.66
110	5550	46.66	64.05
134	5670	44.55	70.04

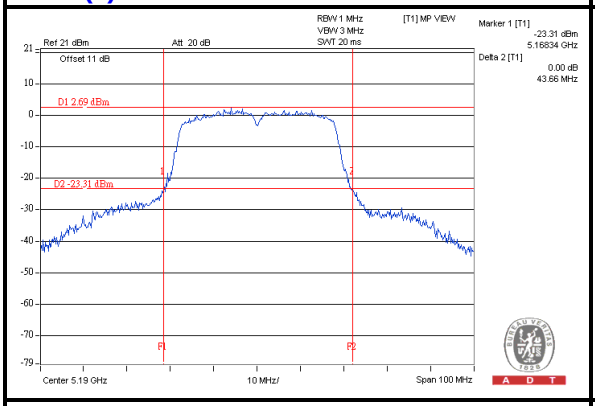
Note: For FCC output power limitation is determined based on 26dB bandwidth.

a.5150~5250MHz: 20.40dBm > 14.43dBm
b.5250~5350MHz: 20.43dBm > 21.43dBm
c. 5470~5725MHz: 27.40dBm > 21.65dBm

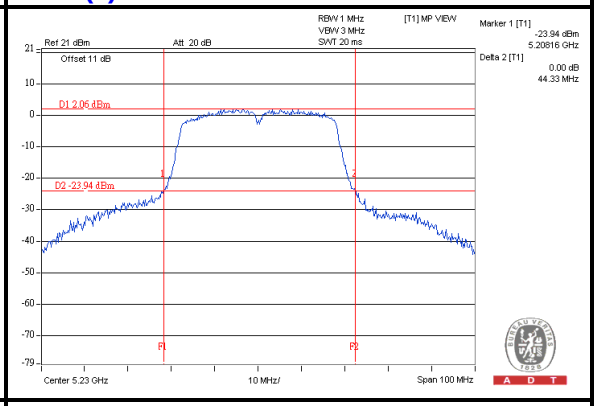
Note: For Industry Canada output power limitation is determined based on 99% bandwidth.

a.5150~5250MHz: 19.56dBm > 14.43dBm
b.5250~5350MHz: 26.58dBm > 21.43dBm
c. 5470~5725MHz: 26.58dBm > 21.65dBm

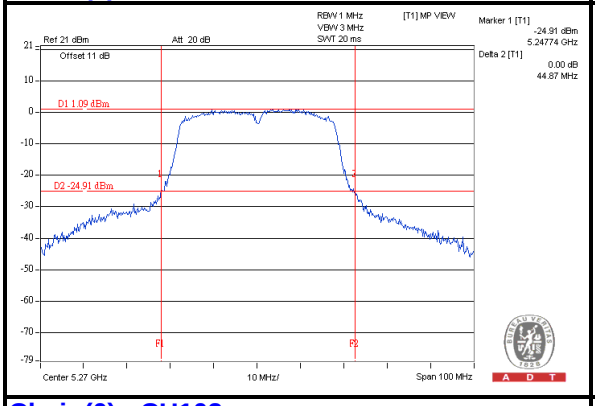
Chain(0) : CH38



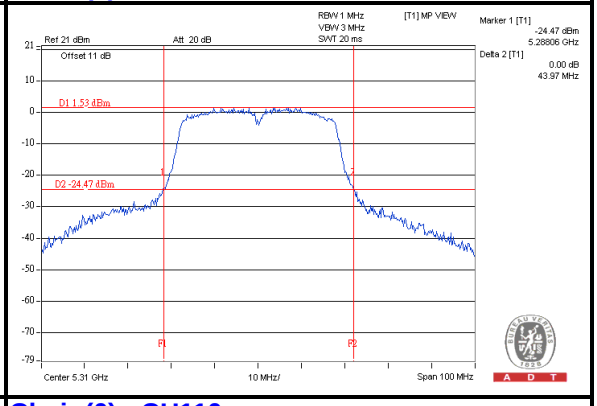
Chain(0) : CH46



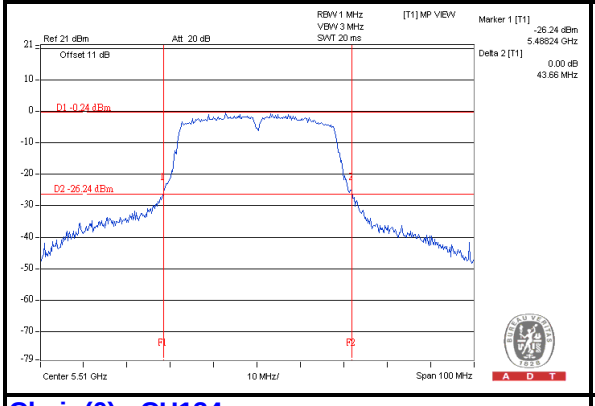
Chain(0) : CH54



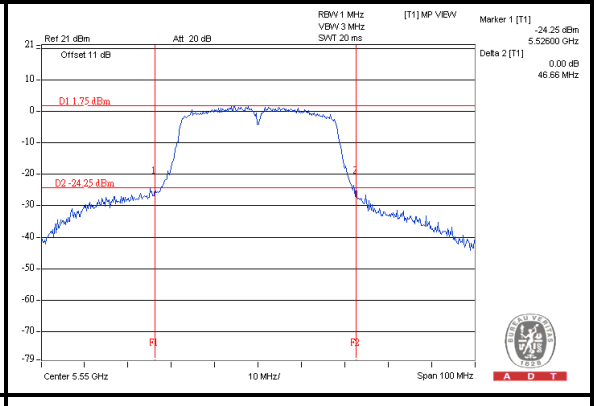
Chain(0) : CH62



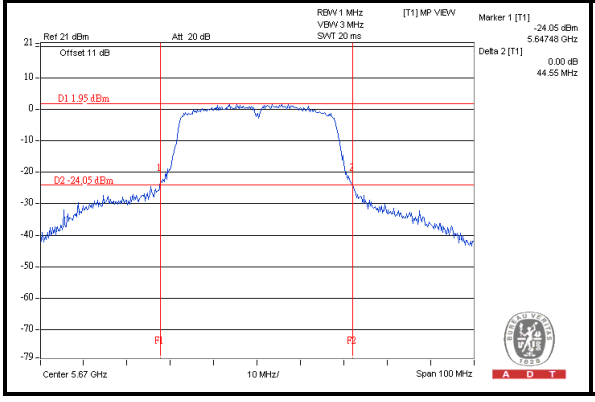
Chain(0) : CH102



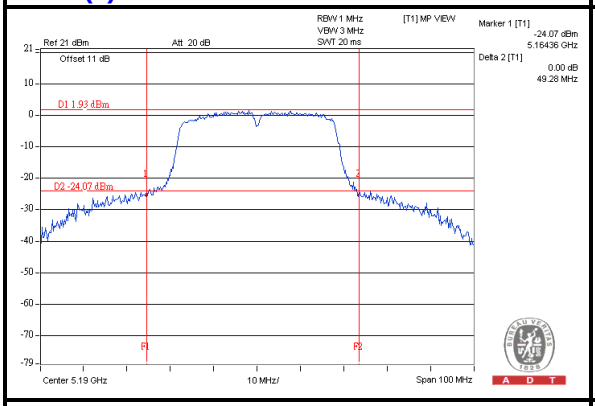
Chain(0) : CH110



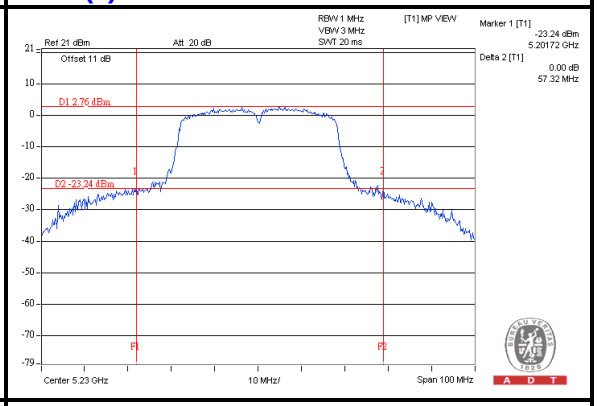
Chain(0) : CH134



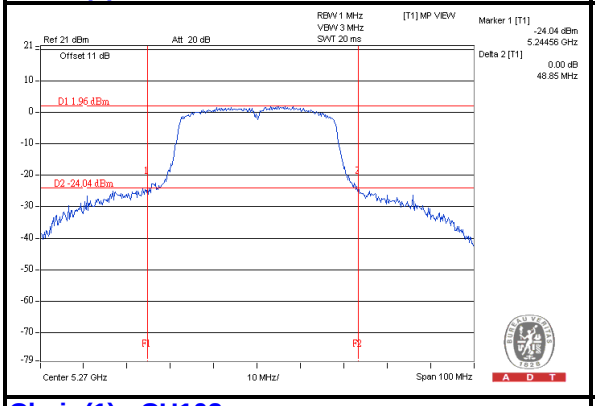
Chain(1) : CH38



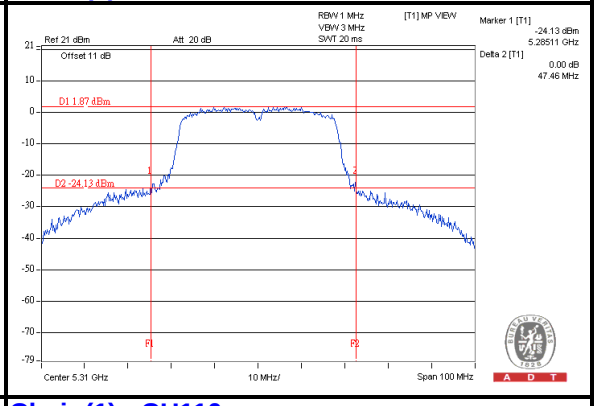
Chain(1) : CH46



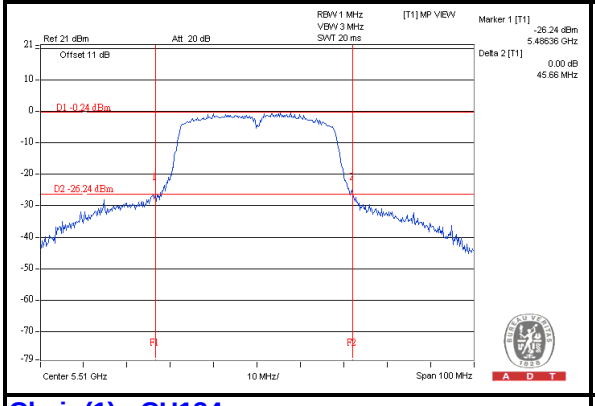
Chain(1) : CH54



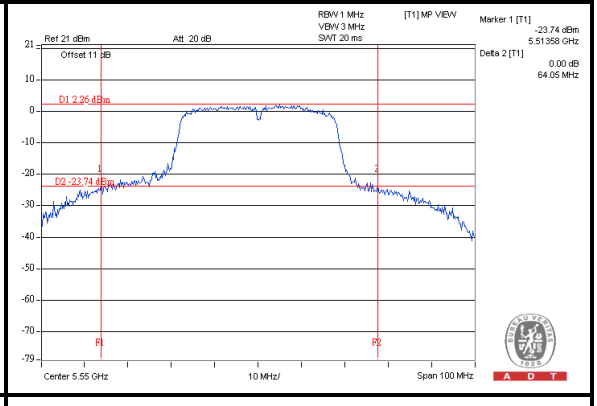
Chain(1) : CH62



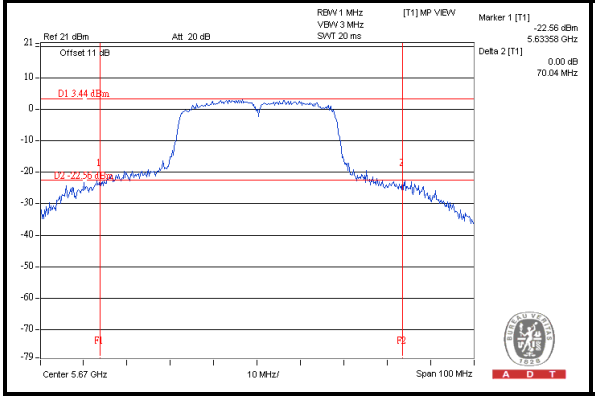
Chain(1) : CH102



Chain(1) : CH110



Chain(1) : CH134



4.2 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.2.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 – 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

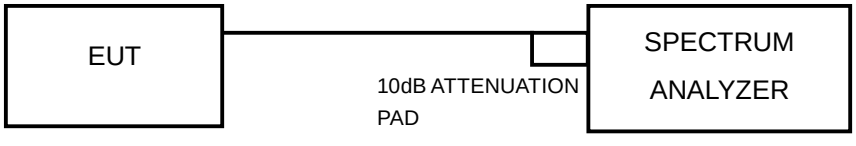
4.2.3 TEST PROCEDURES

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Sweep time = auto, trigger set to “free run”.
4) Trace average at least 100 traces in power averaging mode.
5) Record the max value

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

4.2.7 TEST RESULTS

802.11a

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-3.41	-1.47	0.68	1.43	PASS
40	5200	-2.76	-1.63	0.85	1.43	PASS
48	5240	-4.02	-1.94	0.15	1.43	PASS
52	5260	-3.12	-2.79	0.06	8.43	PASS
60	5300	-2.68	-2.78	0.28	8.43	PASS
64	5320	-3.14	-3.22	-0.17	8.43	PASS
100	5500	-3.05	-2.78	0.10	8.65	PASS
116	5580	-2.98	-2.43	0.31	8.65	PASS
132	5660	-3.31	-1.53	0.68	8.65	PASS
140	5700	-4.13	-1.41	0.45	8.65	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

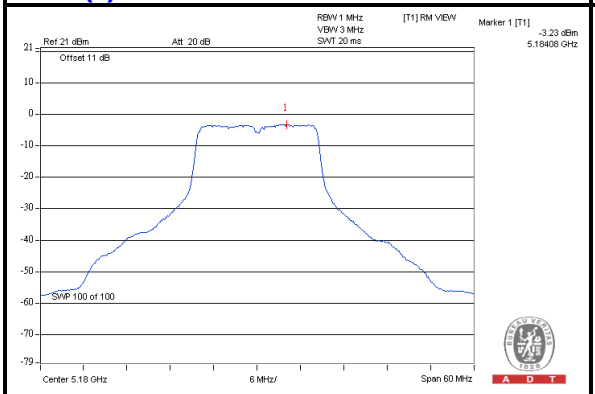
For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

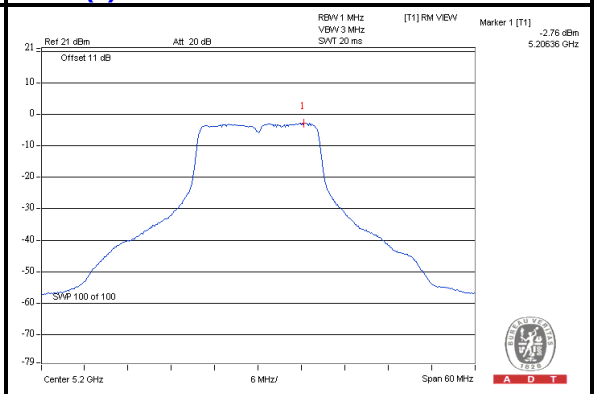
Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

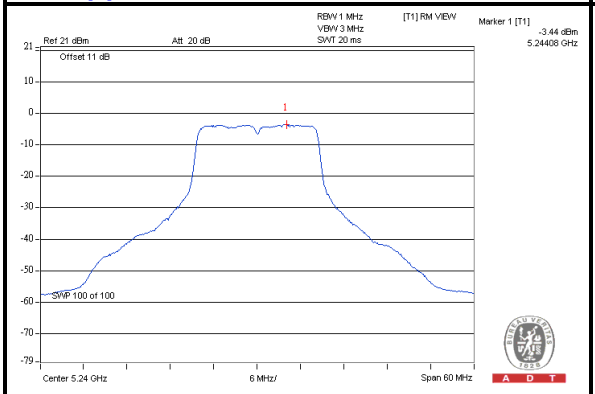
Chain(0) : CH36



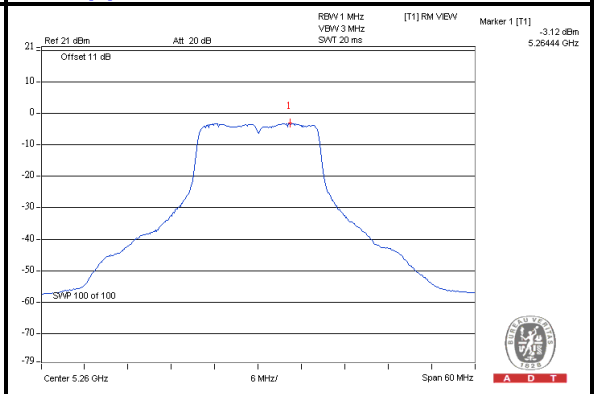
Chain(0) : CH40



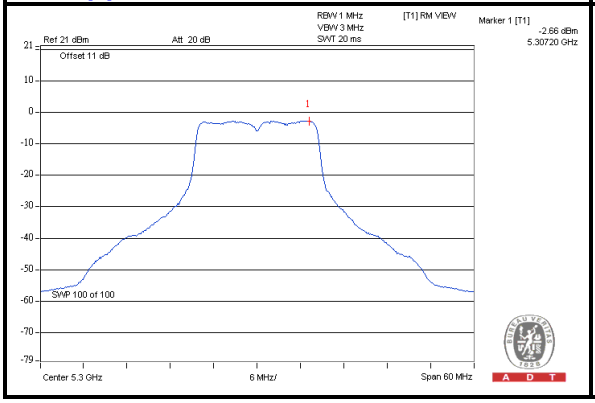
Chain(0) : CH48



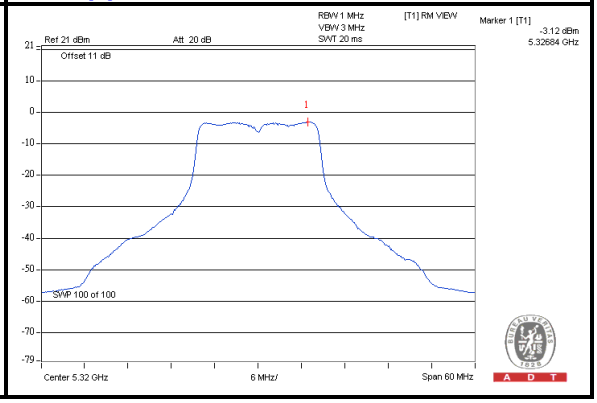
Chain(0) : CH52



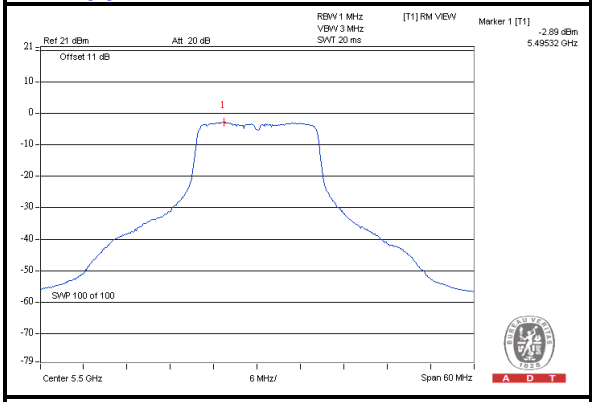
Chain(0) : CH60



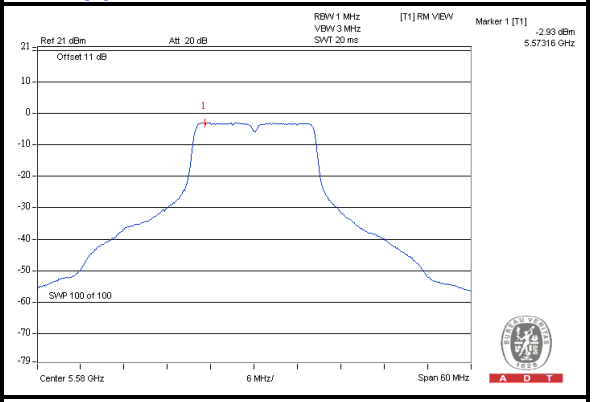
Chain(0) : CH64



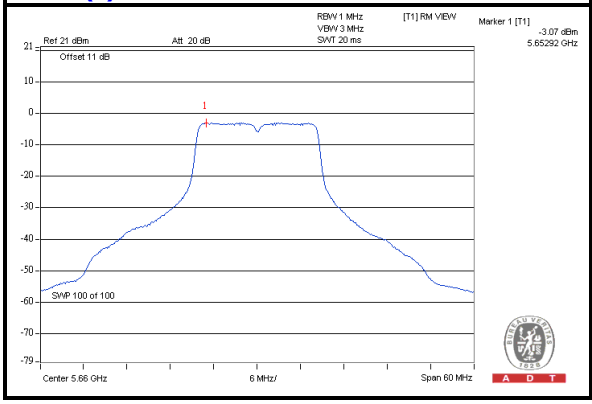
Chain(0) : CH100



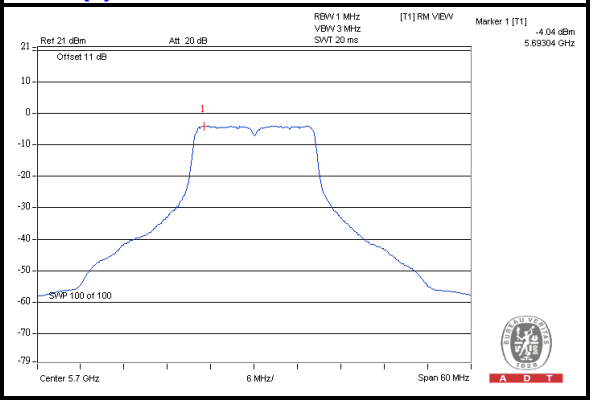
Chain(0) : CH116



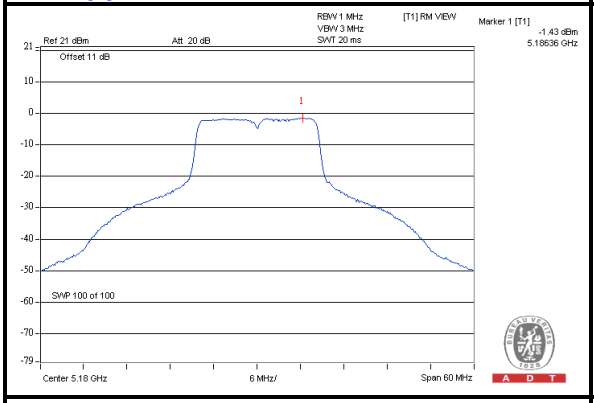
Chain(0) : CH132



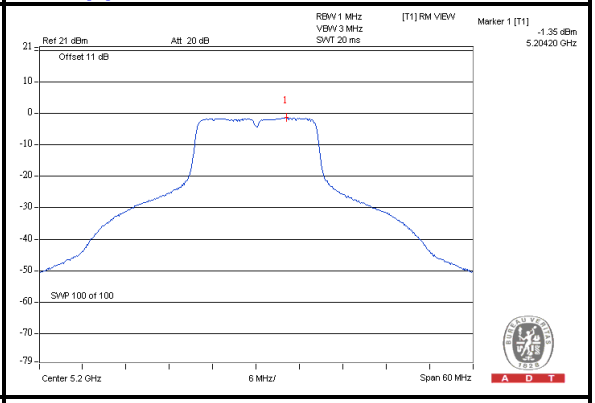
Chain(0) : CH140



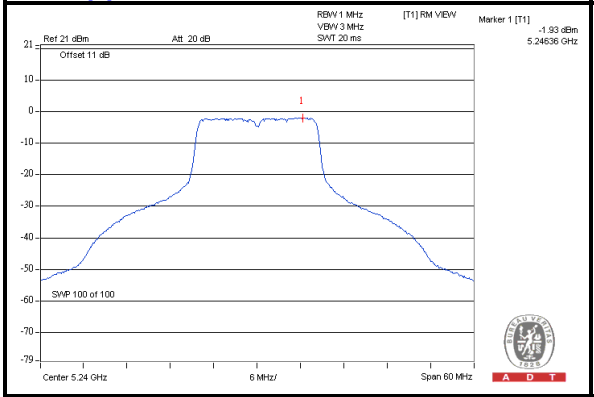
Chain(1) : CH36



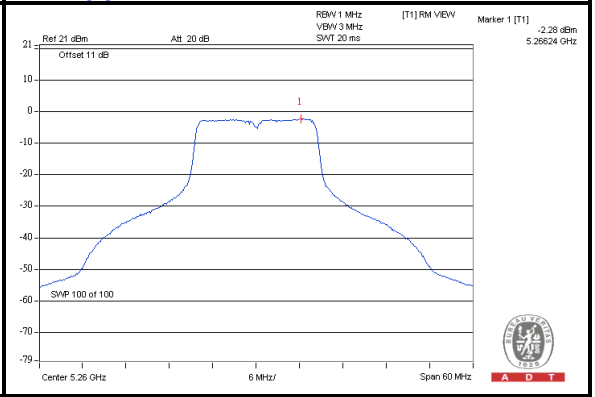
Chain(1) : CH40



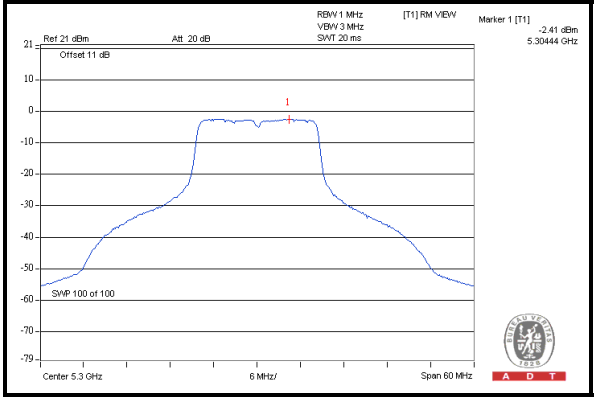
Chain(1) : CH48



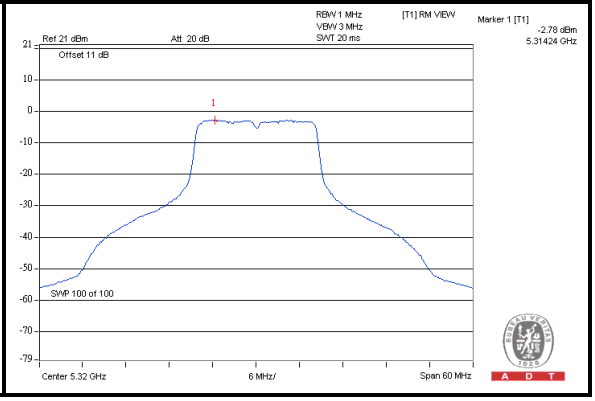
Chain(1) : CH52



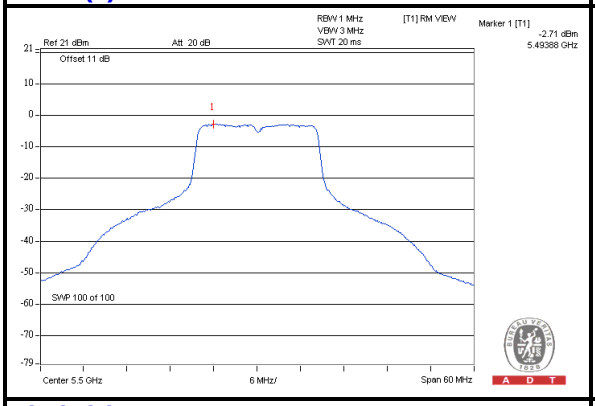
Chain(1) : CH60



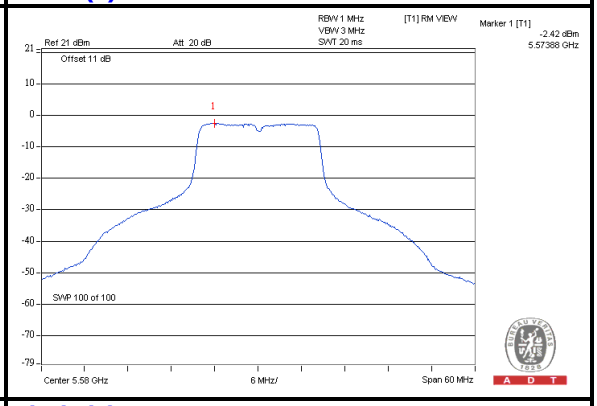
Chain(1) : CH64



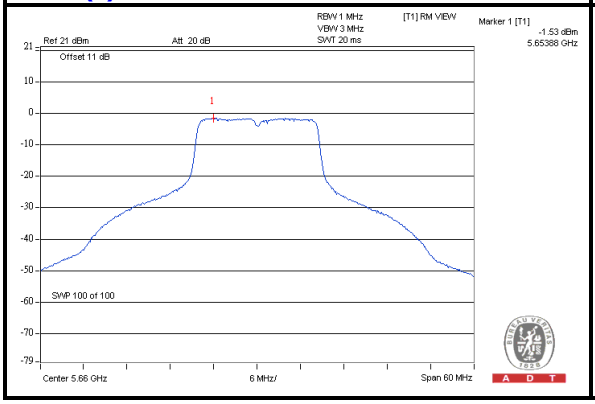
Chain(1) : CH100



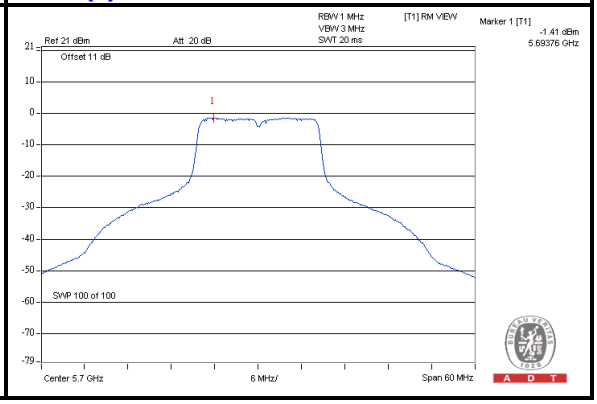
Chain(1) : CH116



Chain(1) : CH132



Chain(1) : CH140



802.11n (HT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (DBM)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-4.30	-2.89	-0.53	1.43	PASS
40	5200	-4.29	-2.80	-0.47	1.43	PASS
48	5240	-4.17	-3.37	-0.74	1.43	PASS
52	5260	-3.96	-3.63	-0.78	8.43	PASS
60	5300	-4.47	-4.31	-1.38	8.43	PASS
64	5320	-4.73	-4.06	-1.37	8.43	PASS
100	5500	-3.55	-3.83	-0.68	8.65	PASS
116	5580	-3.48	-3.90	-0.67	8.65	PASS
132	5660	-3.58	-2.63	-0.07	8.65	PASS
140	5700	-4.46	-1.68	0.16	8.65	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

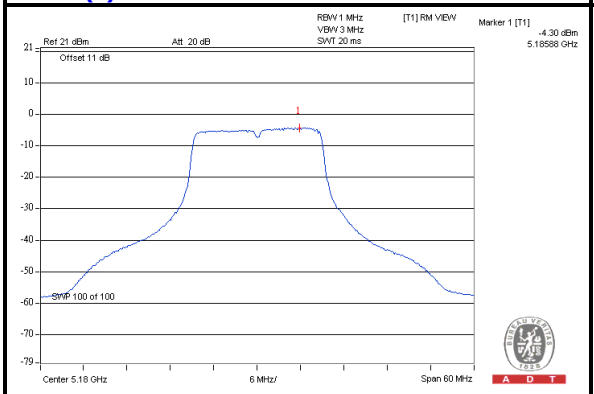
For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

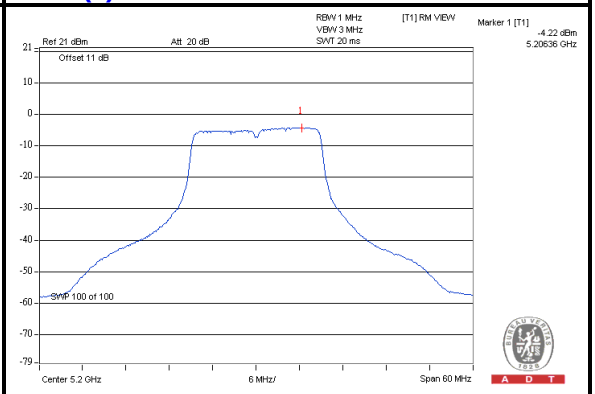
Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

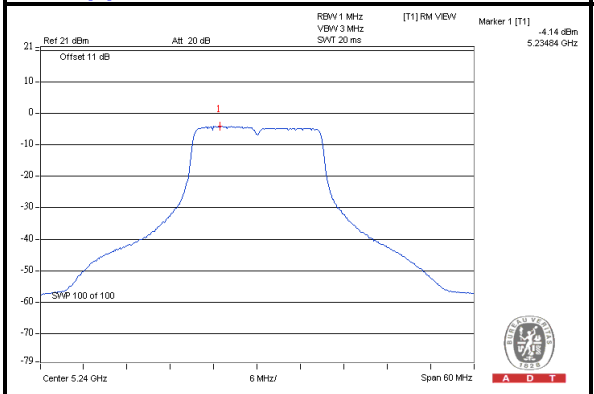
Chain(0) : CH36



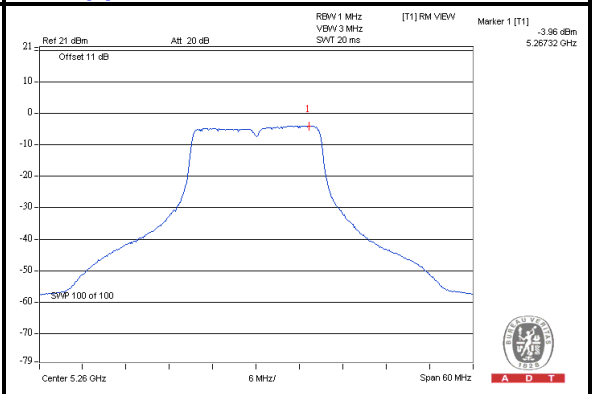
Chain(0) : CH40



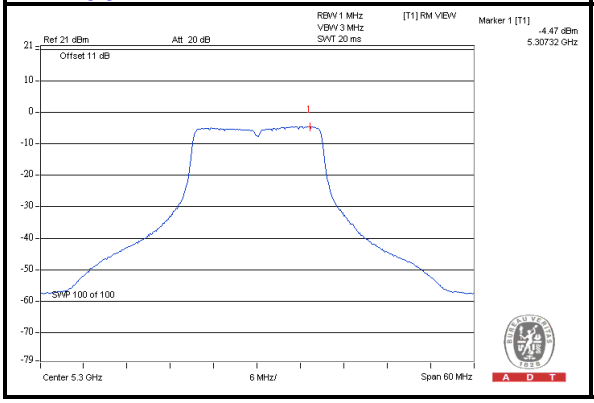
Chain(0) : CH48



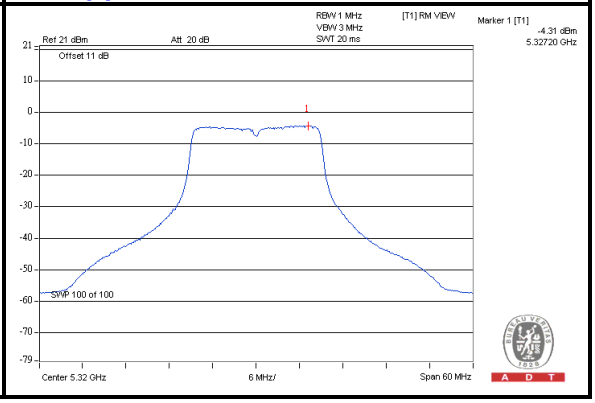
Chain(0) : CH52



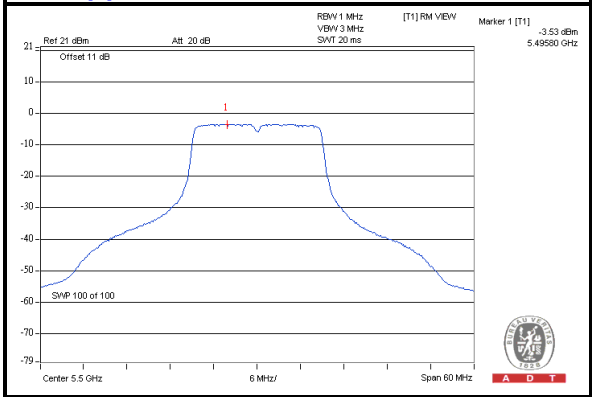
Chain(0) : CH60



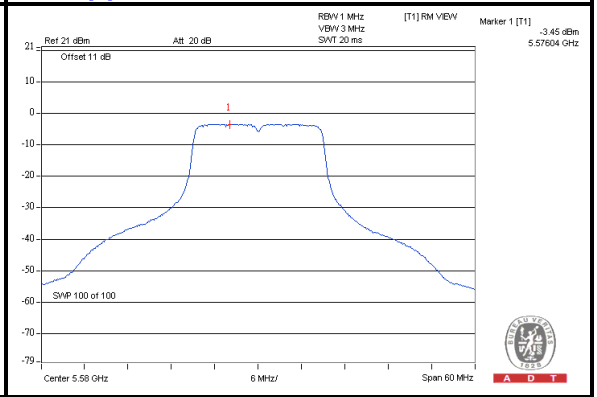
Chain(0) : CH64



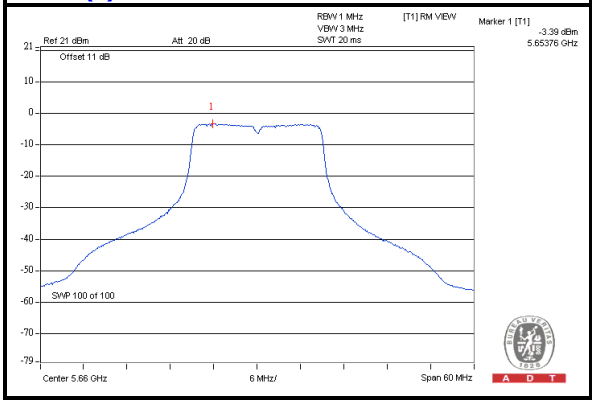
Chain(0) : CH100



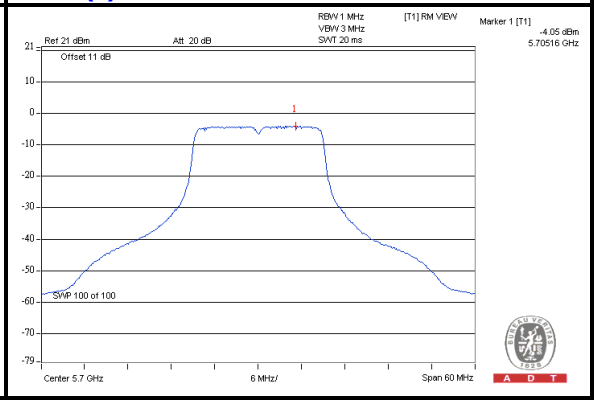
Chain(0) : CH116



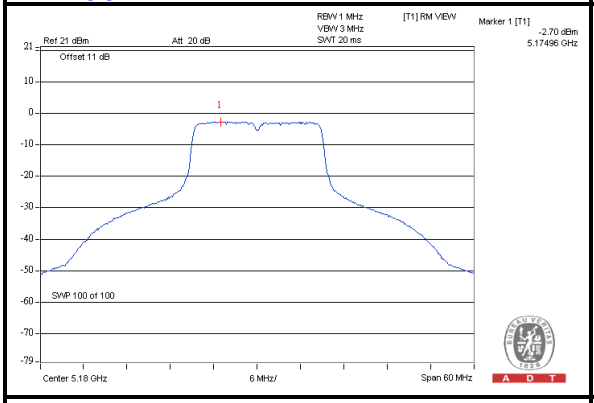
Chain(0) : CH132



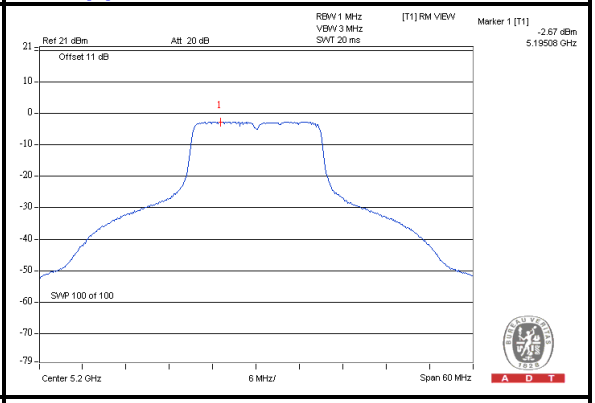
Chain(0) : CH140



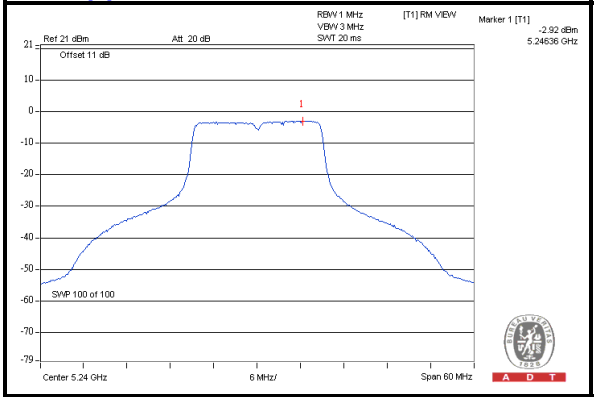
Chain(1) : CH36



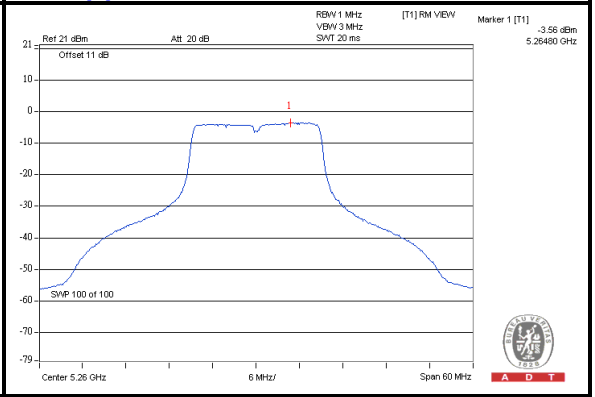
Chain(1) : CH40



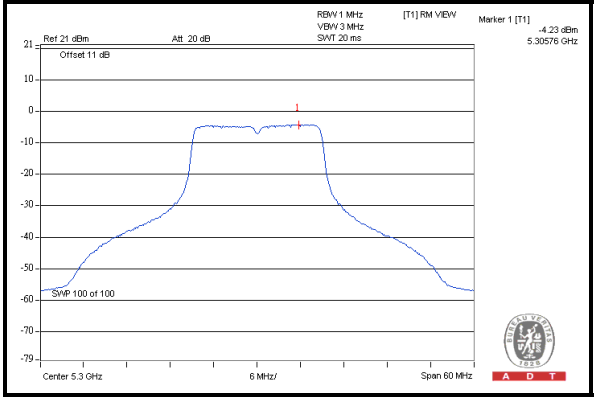
Chain(1) : CH48



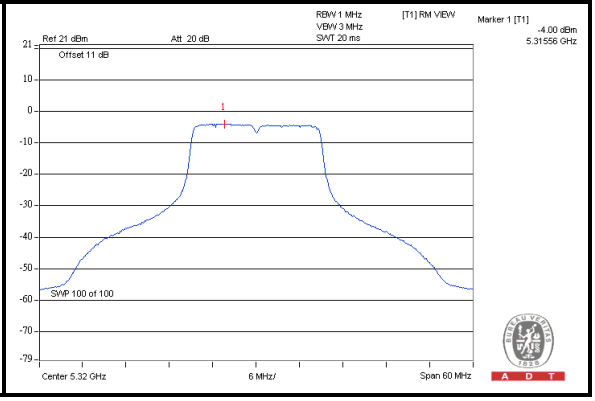
Chain(1) : CH52



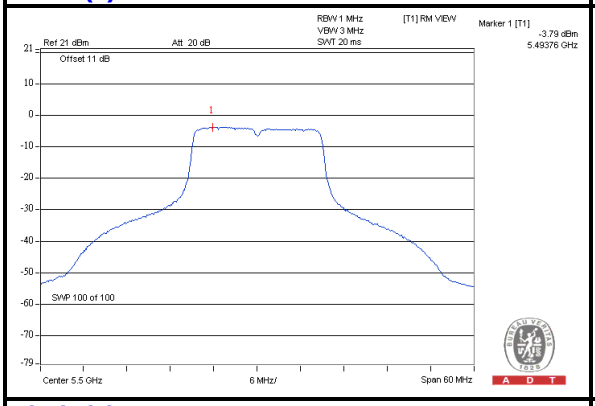
Chain(1) : CH60



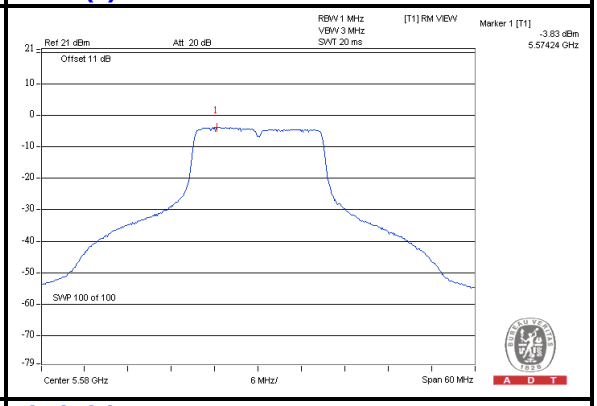
Chain(1) : CH64



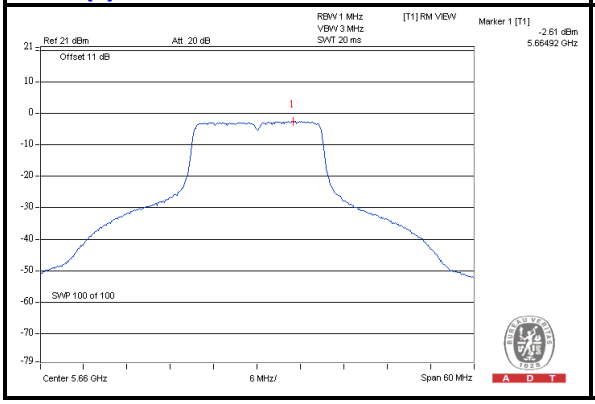
Chain(1) : CH100



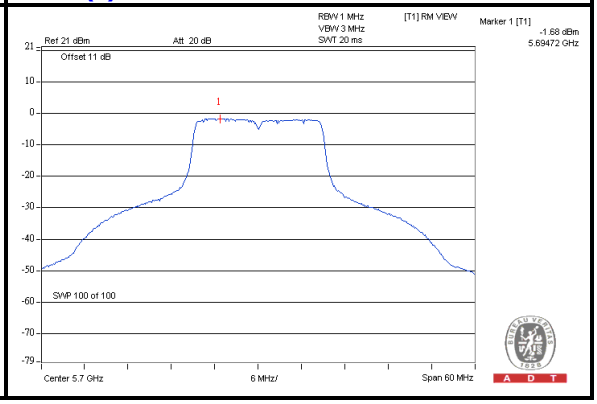
Chain(1) : CH116



Chain(1) : CH132



Chain(1) : CH140



802.11n (HT40)

CHAN.	CHAN. FREQ. (MHz)	PSD (DBM)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
38	5190	-7.04	-6.76	-3.89	1.43	PASS
46	5230	-6.67	-5.85	-3.23	1.43	PASS
54	5270	-7.11	-6.25	-3.65	8.43	PASS
62	5310	-7.40	-6.88	-4.12	8.43	PASS
102	5510	-9.48	-9.10	-6.28	8.65	PASS
110	5550	-6.80	-6.43	-3.60	8.65	PASS
134	5670	-6.93	-4.97	-2.83	8.65	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

For Operated in 5150MHz ~ 5250MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) = 8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi) =8.57

The effective legacy gain is 8.57dBi, therefore the limit needs to reduce.

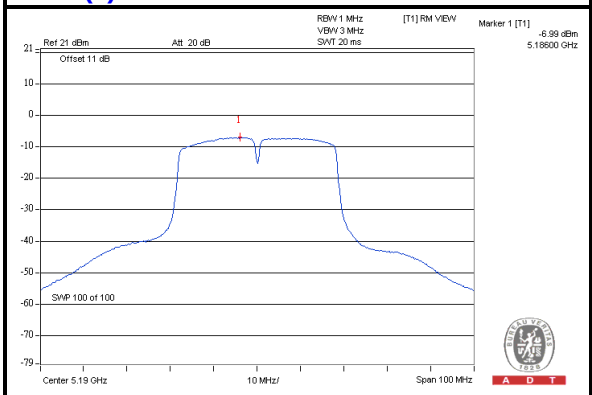
For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

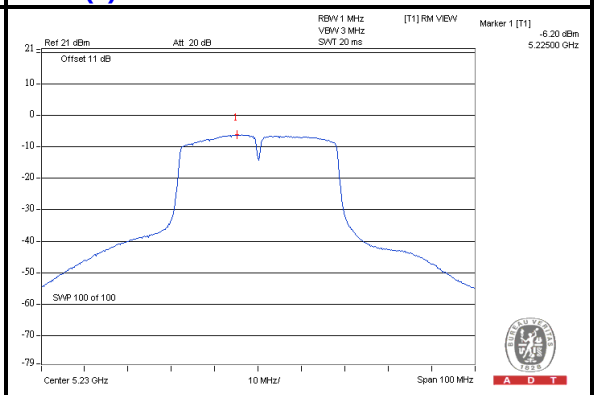
Effective Legacy Gain (dBi) = 8.35

The effective legacy gain is 8.35dBi, therefore the limit needs to reduce.

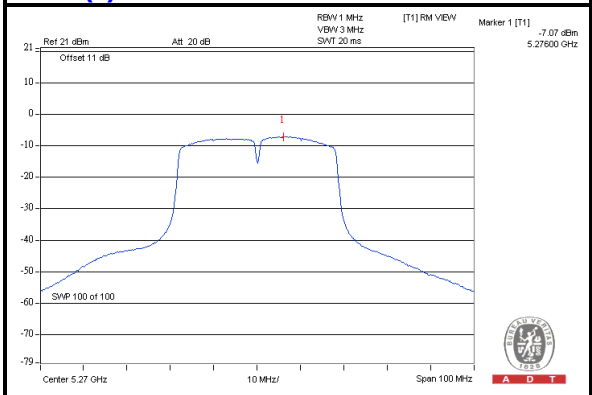
Chain(0) : CH38



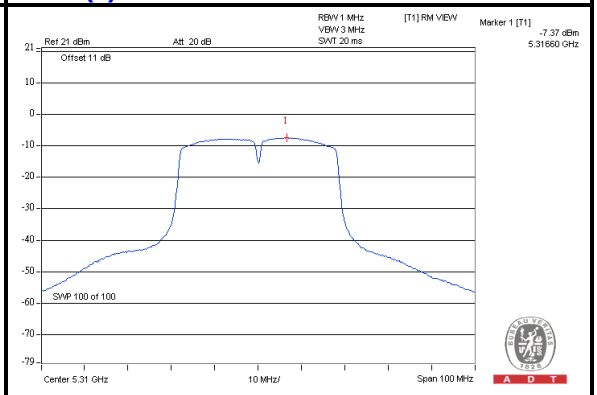
Chain(0) : CH46



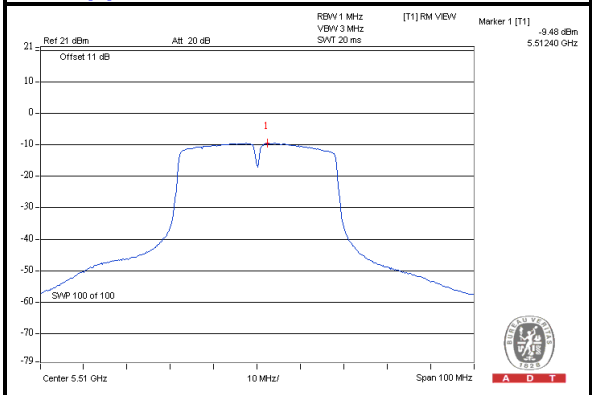
Chain(0) : CH54



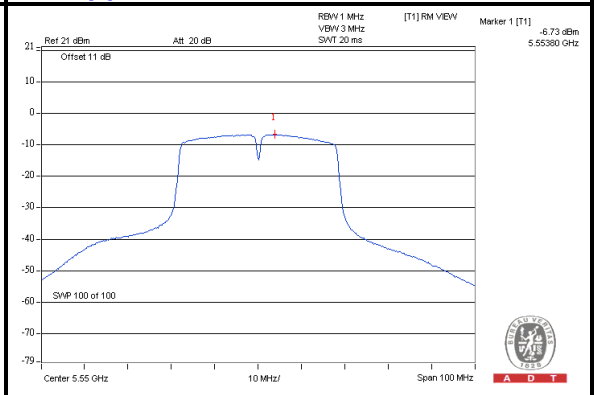
Chain(0) : CH62



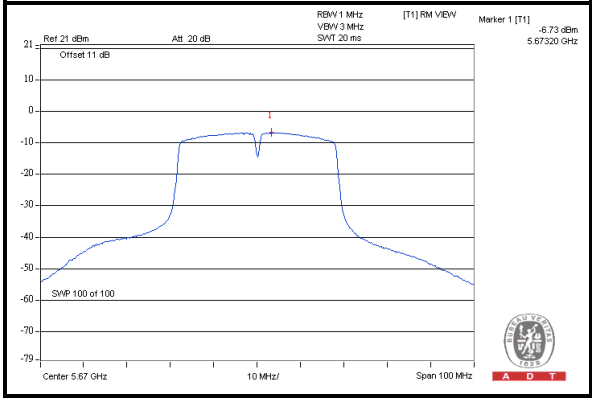
Chain(0) : CH102



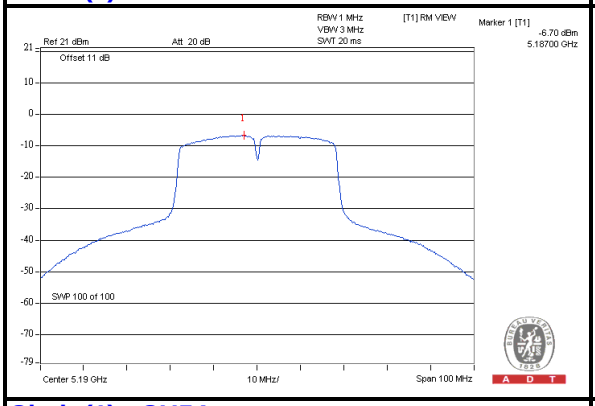
Chain(0) : CH110



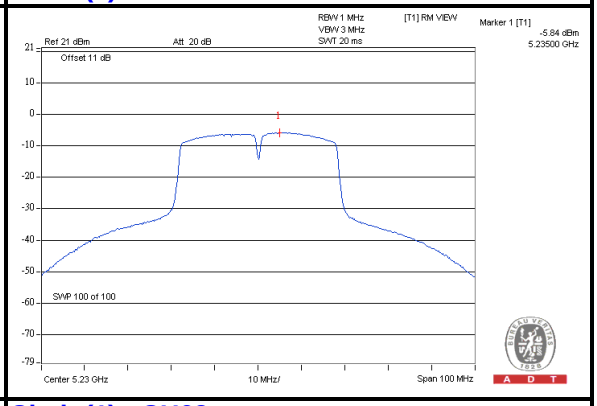
Chain(0) : CH134



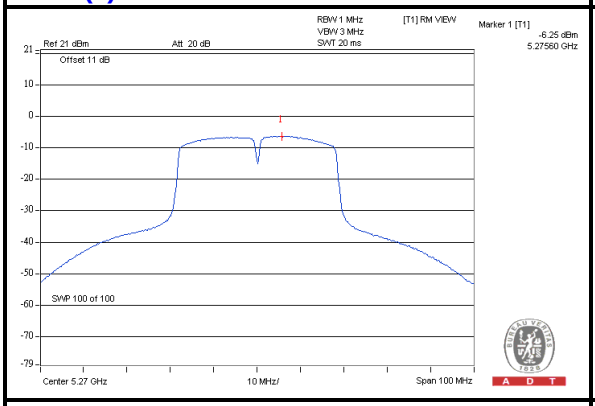
Chain(1) : CH38



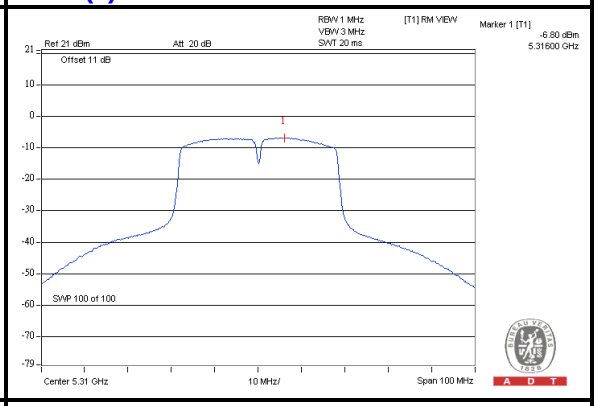
Chain(1) : CH46



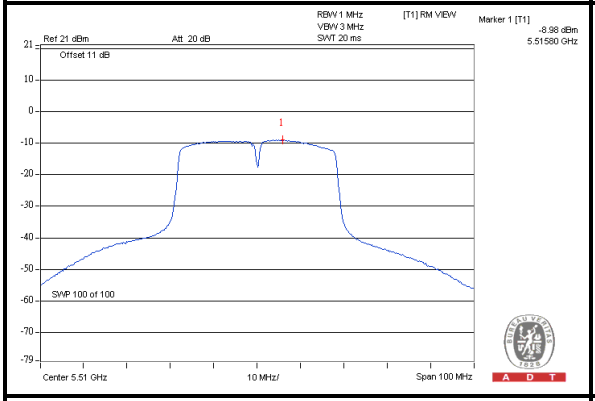
Chain(1) : CH54



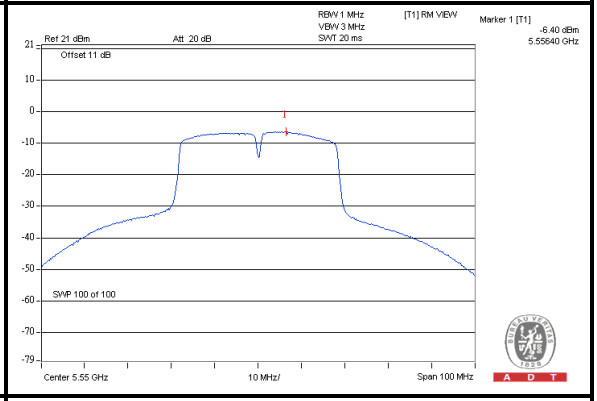
Chain(1) : CH62



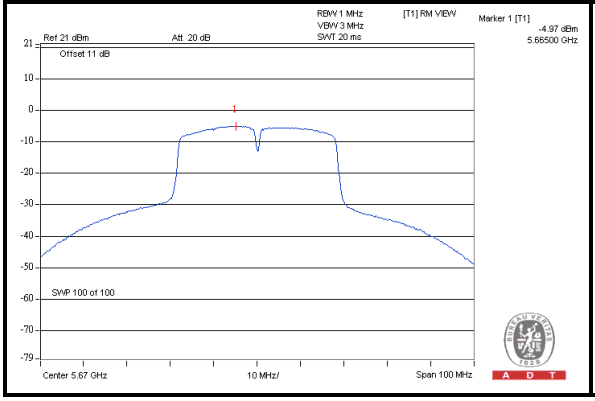
Chain(1) : CH102



Chain(1) : CH110



Chain(1) : CH134



4.3 PEAK POWER EXCURSION MEASUREMENT

4.3.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2011	Nov. 29, 2012

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

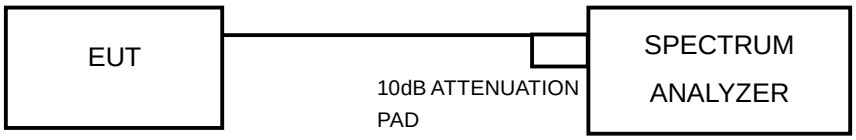
4.3.3 TEST PROCEDURE

1) Set RBW = 1 MHz, VBW ≥ 3 MHz, Detector = peak.
2) Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
3) Use the peak search function to find the peak of the spectrum.
4) Measure the PPSD.
   (Detector = RMS, Sweep time = auto, trigger set to “free run”, Trace average at least 100 traces in power averaging mode.)
5) Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



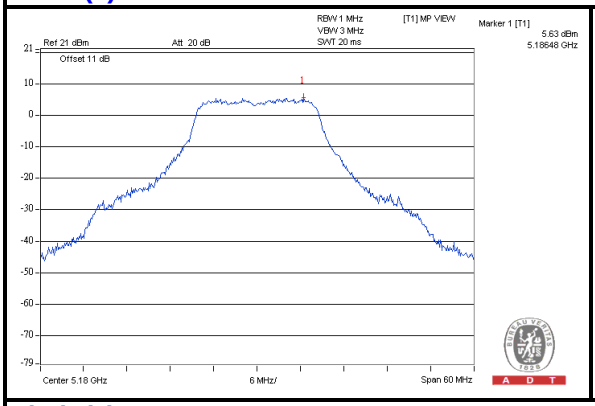
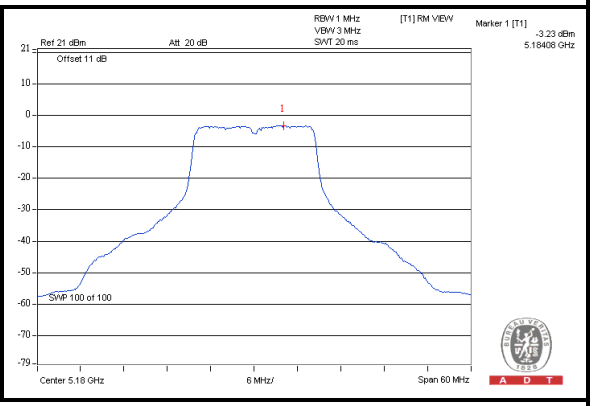
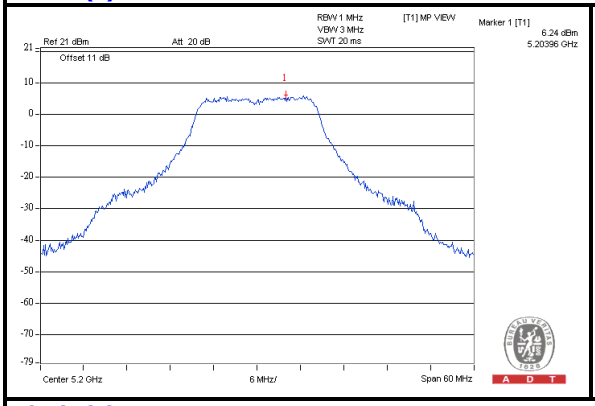
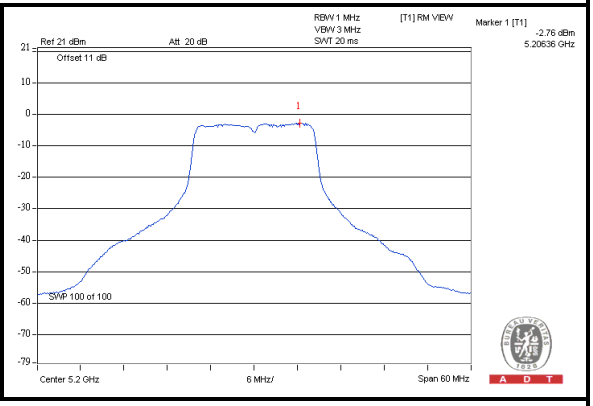
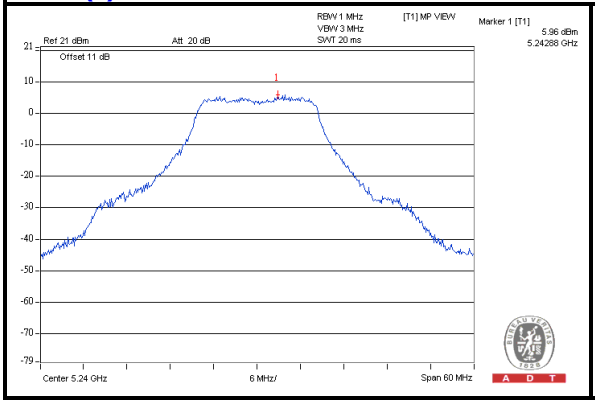
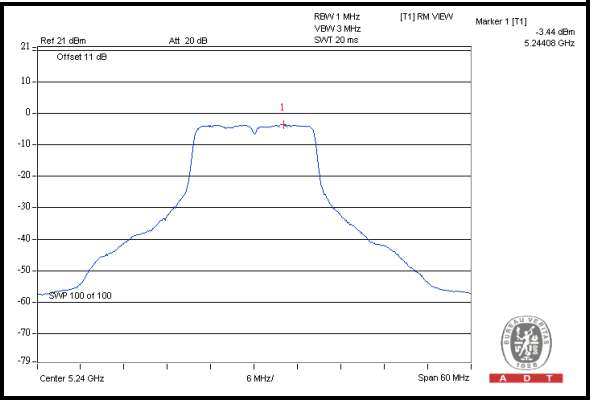
4.3.6 EUT OPERATING CONDITIONS

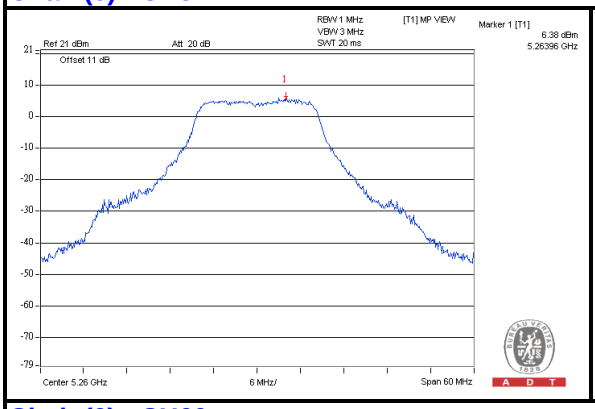
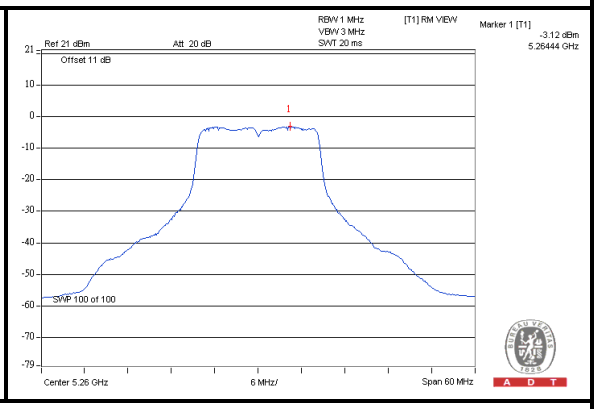
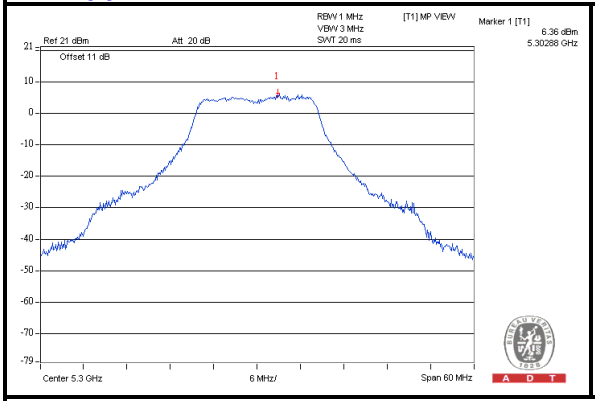
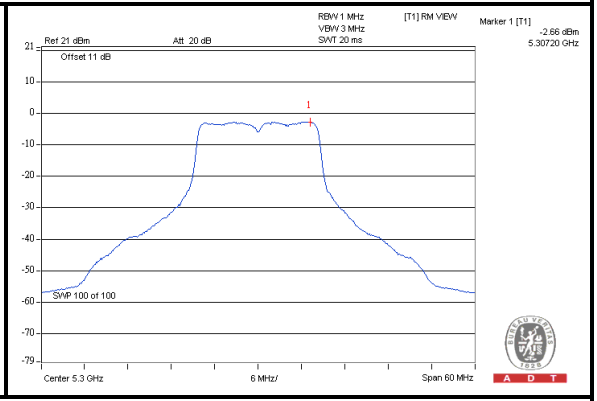
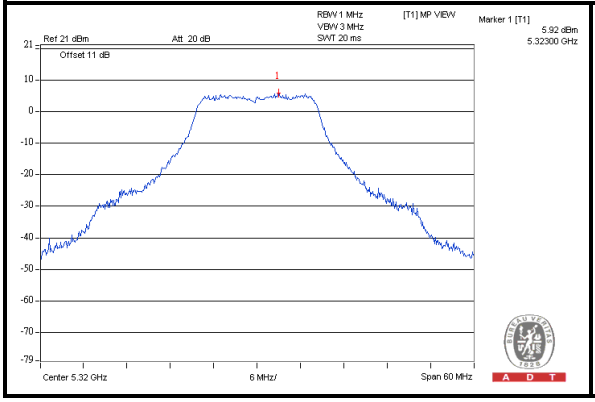
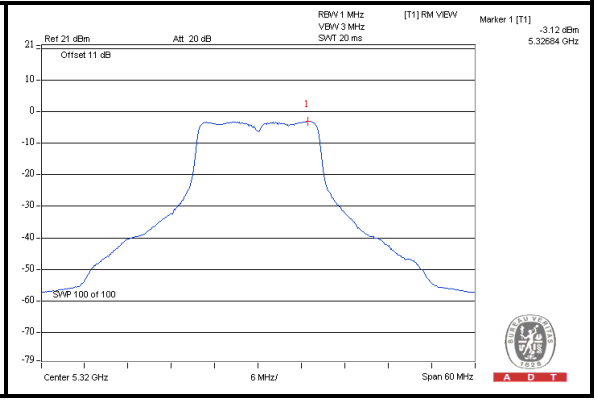
The software(artgui.exe [art2_ver_3_14_Jupiter]) provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

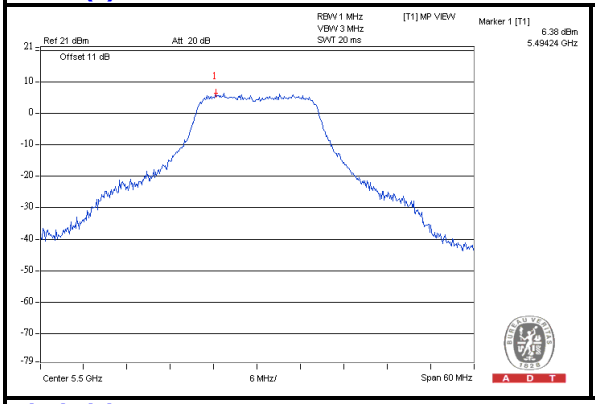
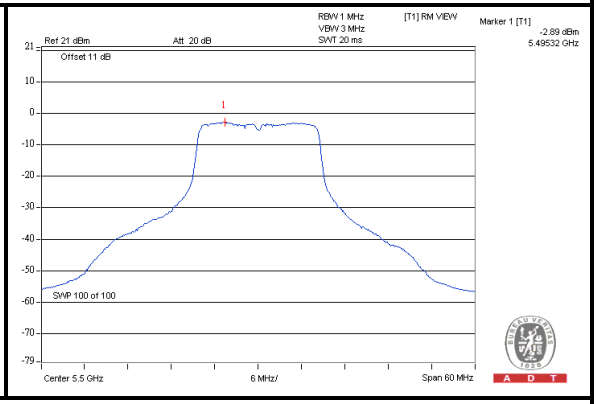
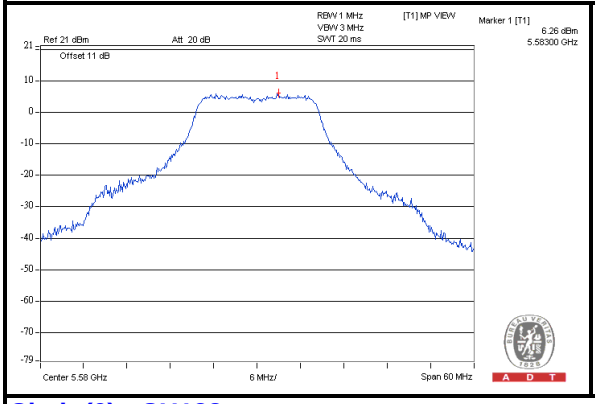
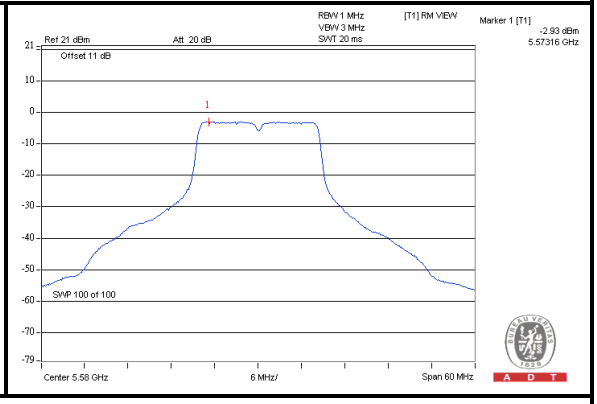
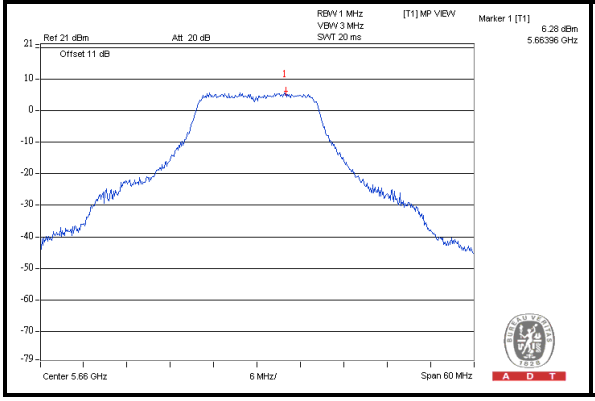
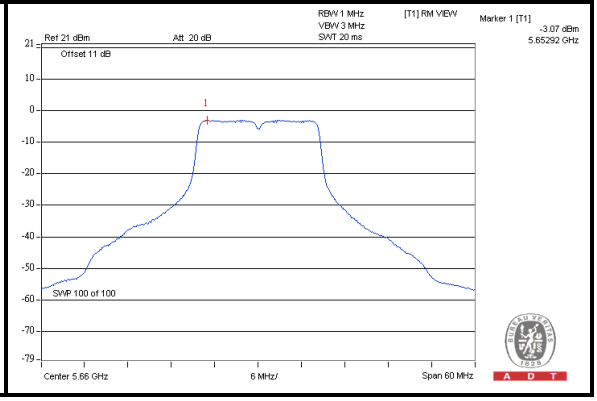
4.3.7 TEST RESULTS

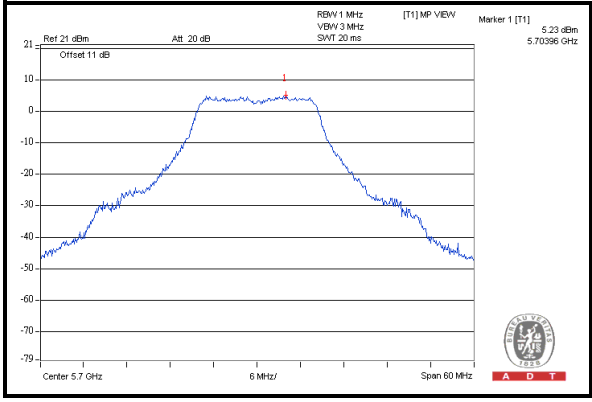
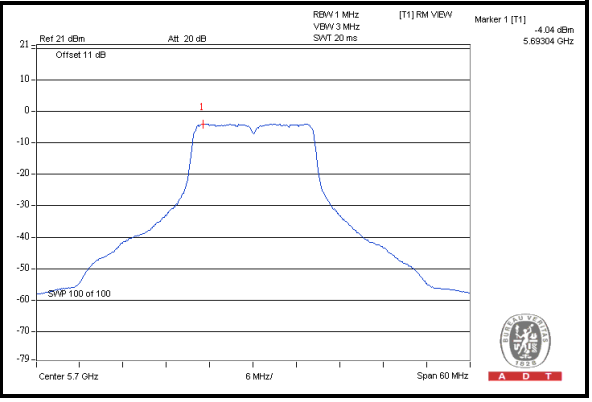
802.11a

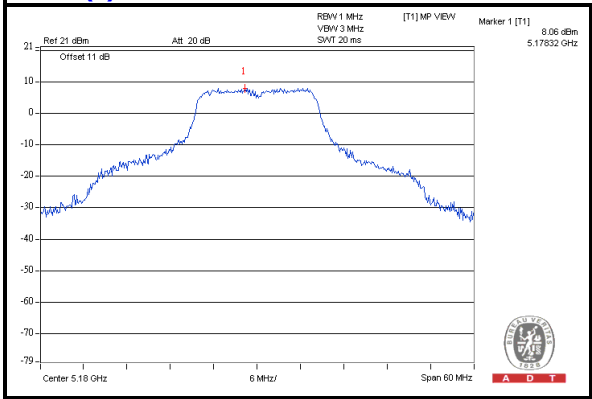
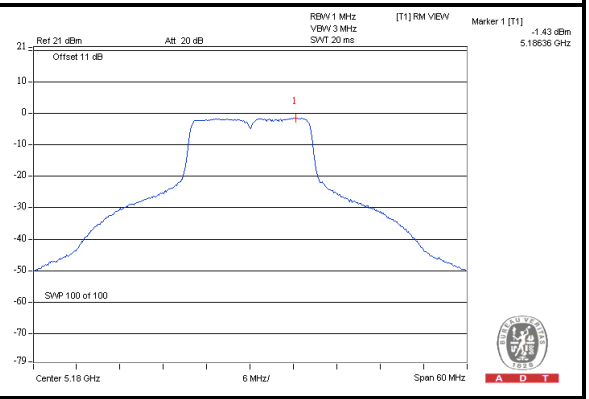
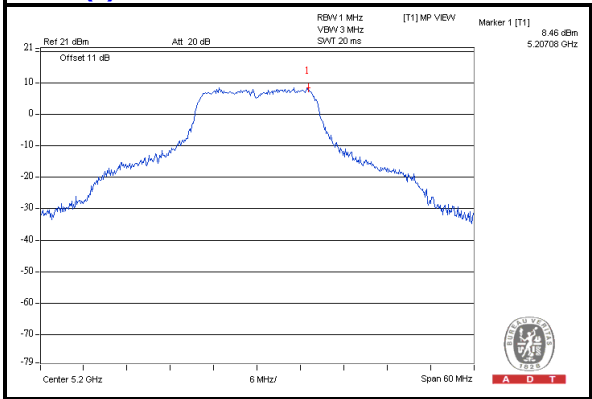
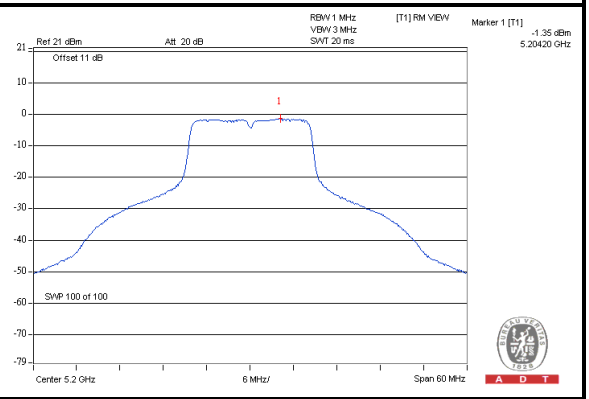
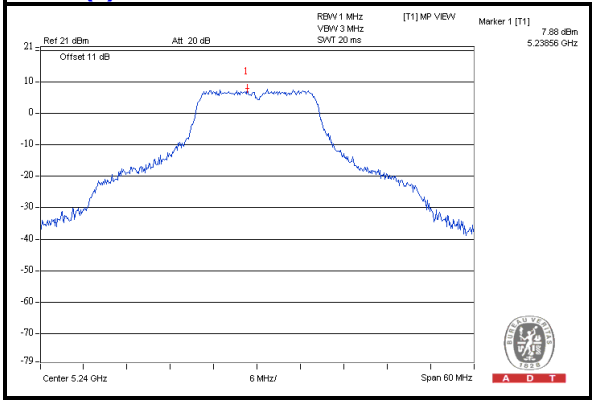
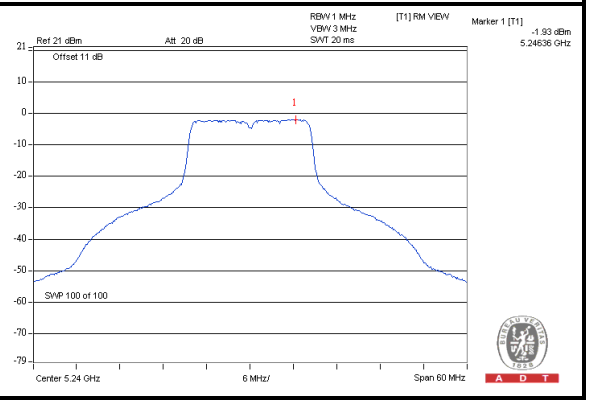
CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	5.63	8.06	-3.41	-1.47	9.04	9.53	13	PASS
40	5200	6.24	8.46	-2.76	-1.63	9.00	10.09	13	PASS
48	5240	5.96	7.88	-4.02	-1.94	9.98	9.82	13	PASS
52	5260	6.38	7.56	-3.12	-2.79	9.50	10.35	13	PASS
60	5300	6.36	7.75	-2.68	-2.78	9.04	10.53	13	PASS
64	5320	5.92	6.99	-3.14	-3.22	9.06	10.21	13	PASS
100	5500	6.38	7.18	-3.05	-2.78	9.43	9.96	13	PASS
116	5580	6.26	7.27	-2.98	-2.43	9.24	9.70	13	PASS
132	5660	6.28	8.05	-3.31	-1.53	9.59	9.58	13	PASS
140	5700	5.23	8.48	-4.13	-1.41	9.36	9.89	13	PASS

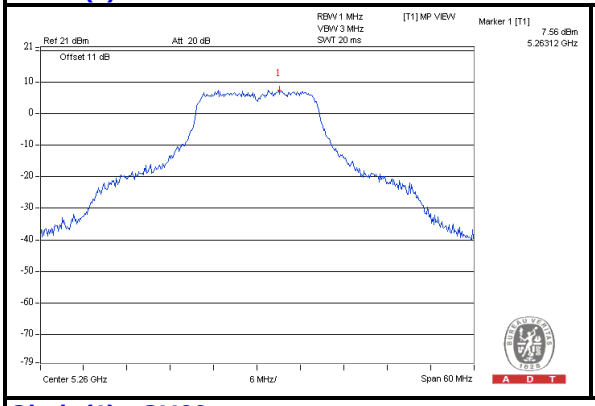
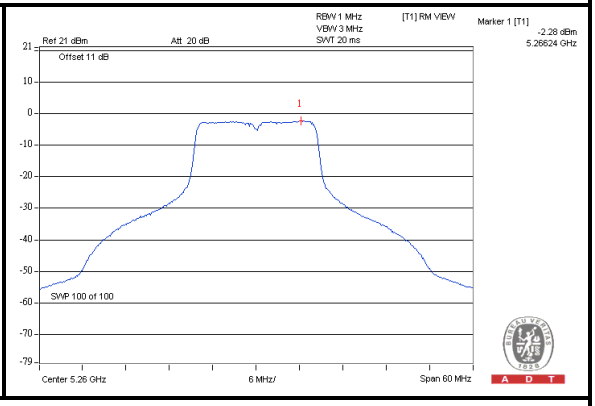
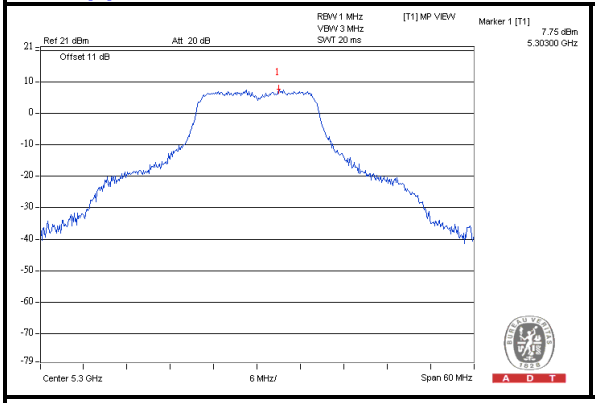
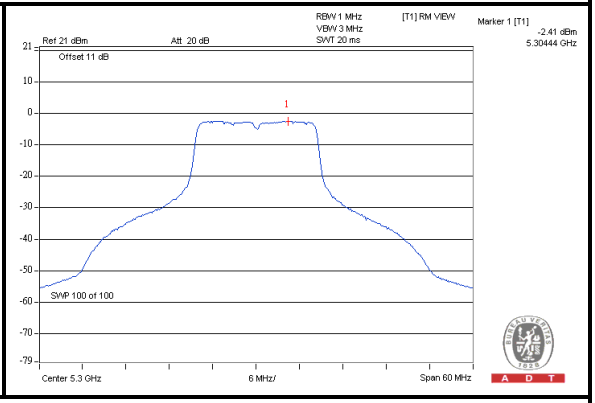
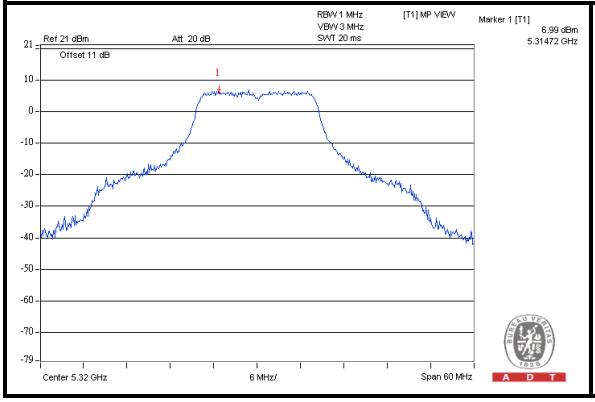
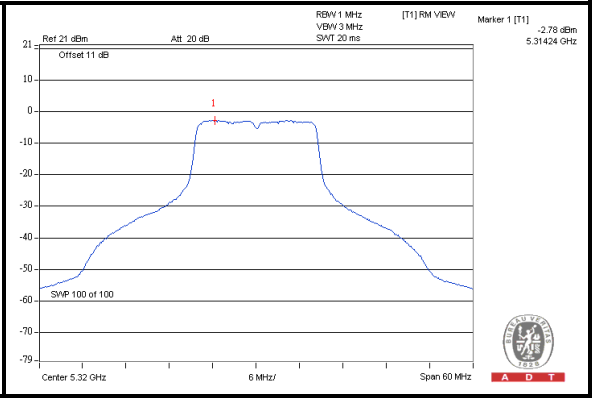
PEAK VALUE	PPSD
Chain(0) : CH36	
	
Chain(0) : CH40	
	
Chain(0) : CH48	
	

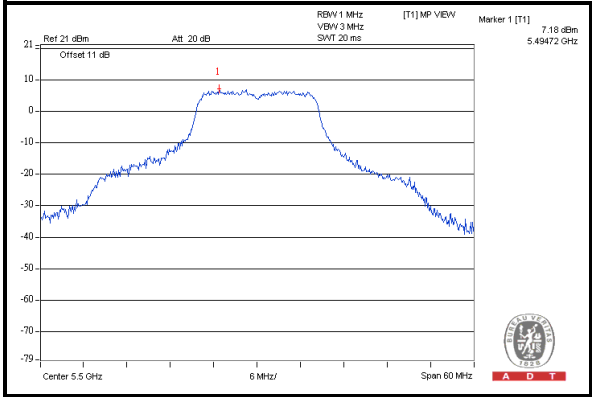
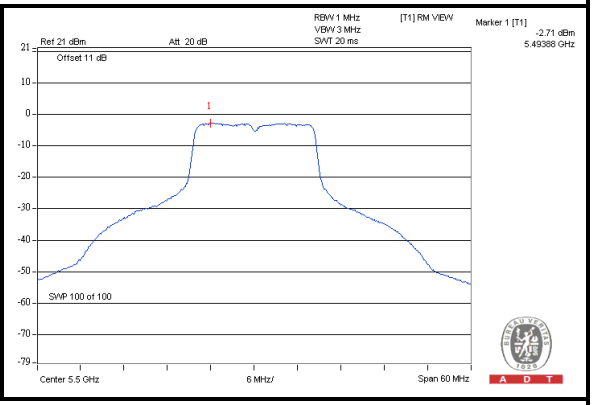
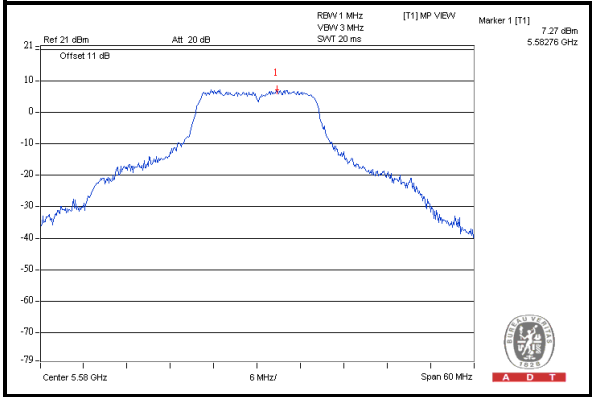
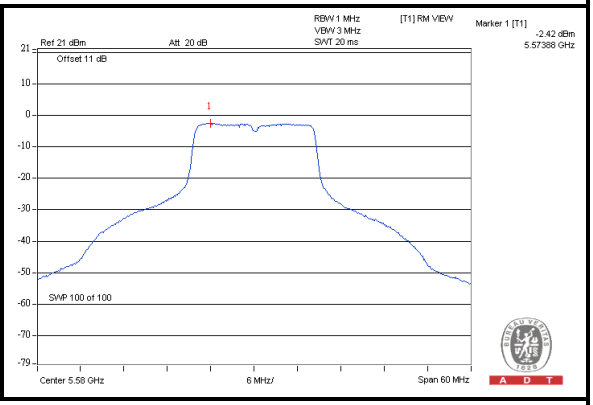
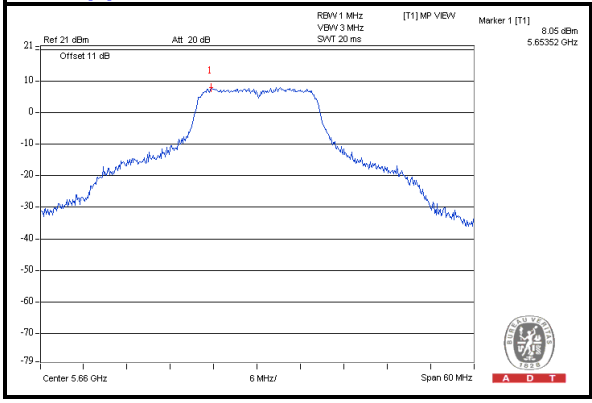
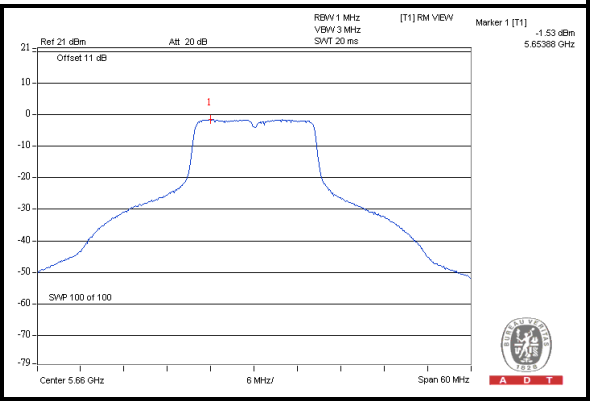
PEAK VALUE	PPSD
Chain(0) : CH52	
	
Chain(0) : CH60	
	
Chain(0) : CH64	
	

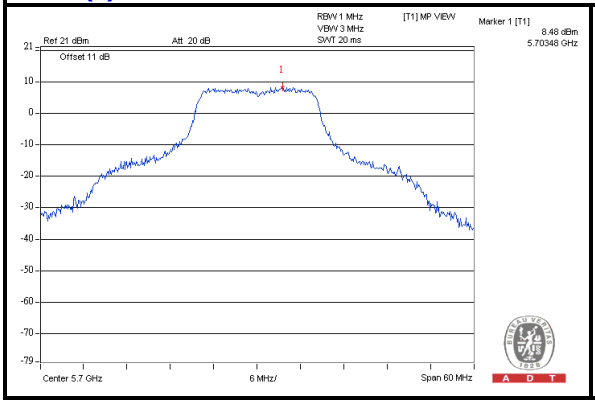
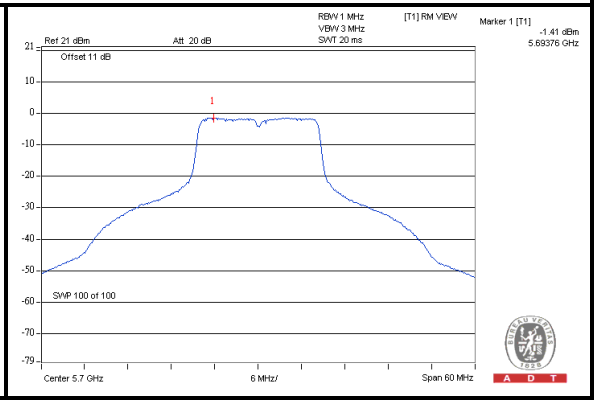
PEAK VALUE	PPSD
Chain(0) : CH100	
	
Chain(0) : CH116	
	
Chain(0) : CH132	
	

PEAK VALUE	PPSD
Chain(0) : CH140	
	

PEAK VALUE	PPSD
Chain(1) : CH36	
	
Chain(1) : CH40	
	
Chain(1) : CH48	
	

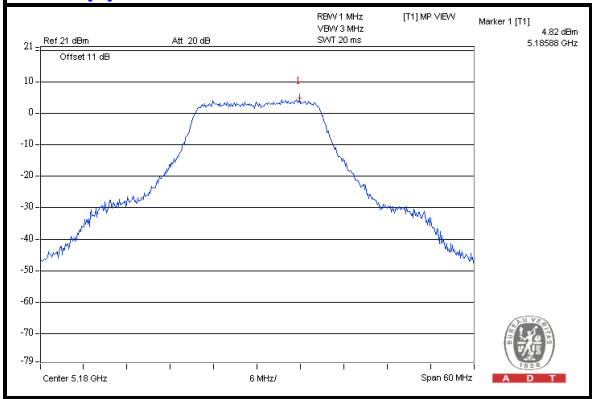
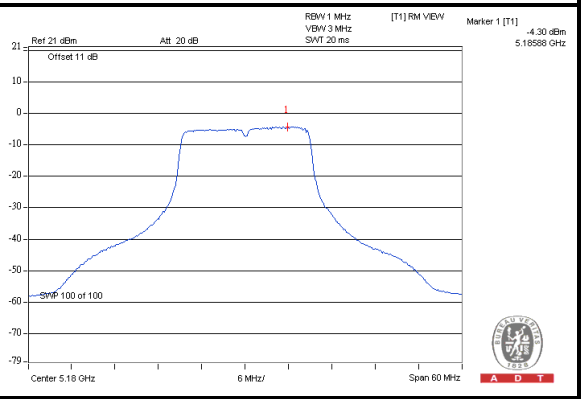
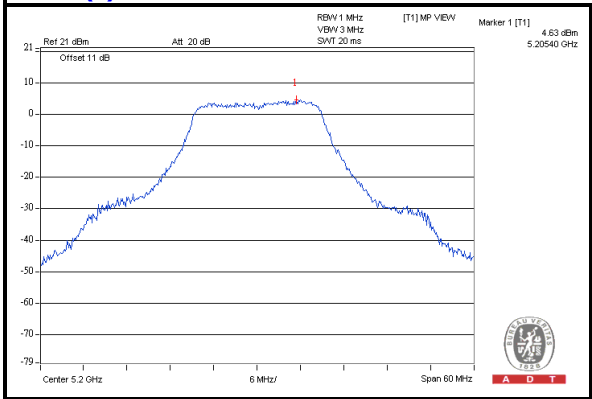
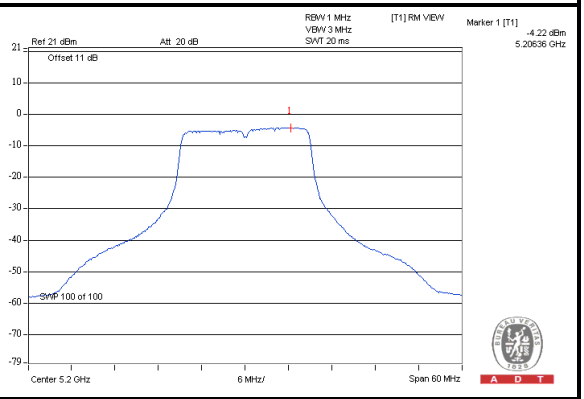
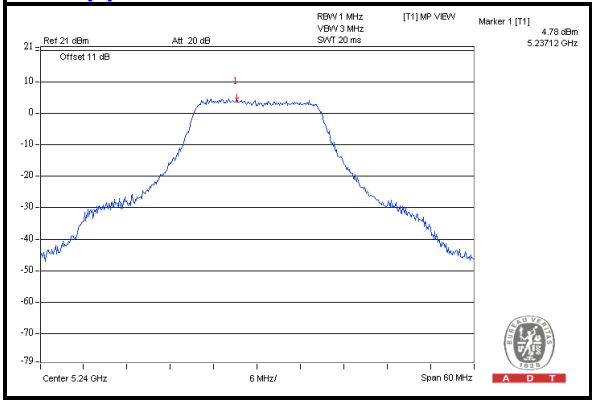
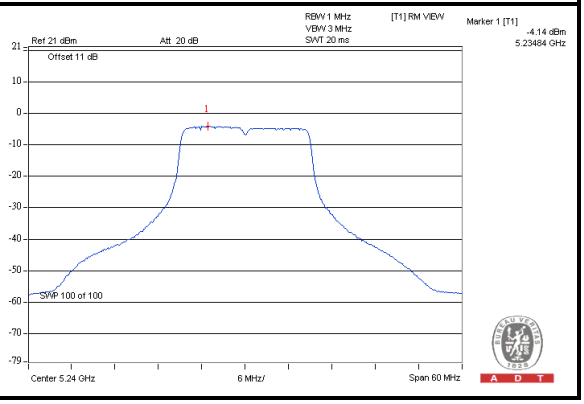
PEAK VALUE	PPSD
Chain(1) : CH52	
	
Chain(1) : CH60	
	
Chain(1) : CH64	
	

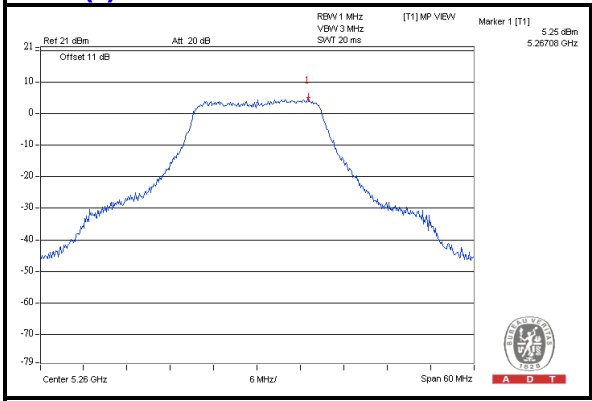
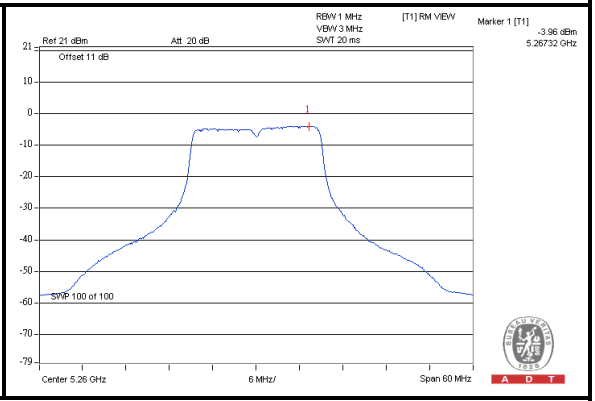
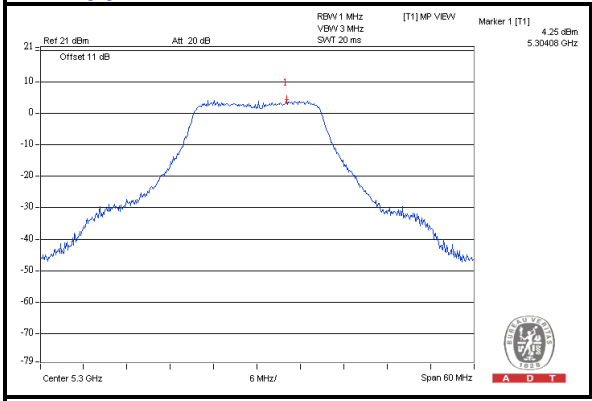
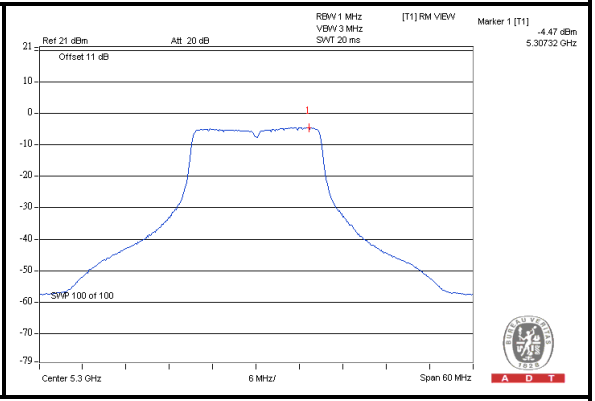
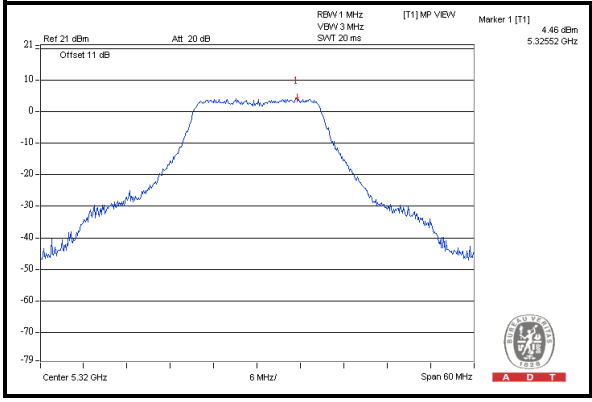
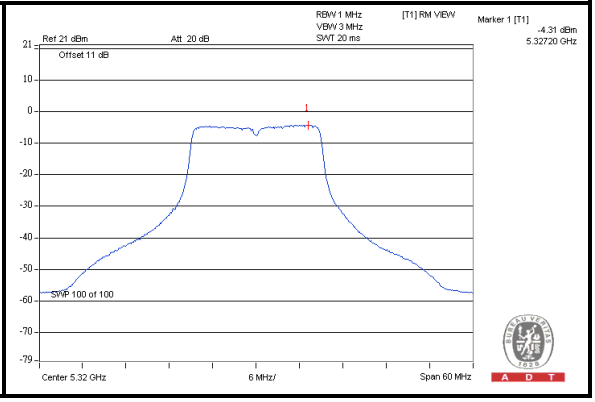
PEAK VALUE	PPSD
Chain(1) : CH100	
	
Chain(1) : CH116	
	
Chain(1) : CH132	
	

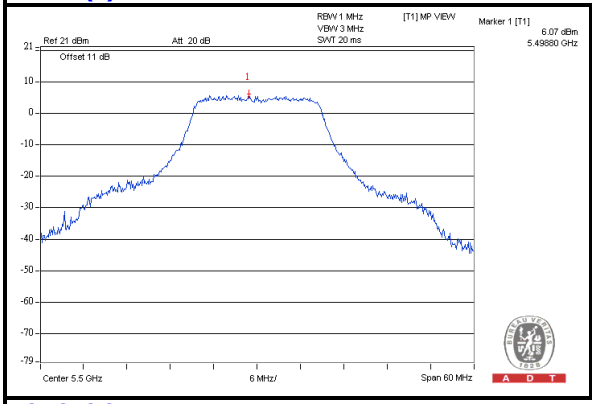
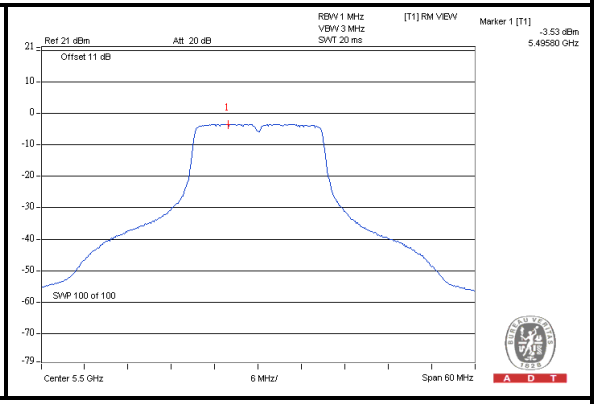
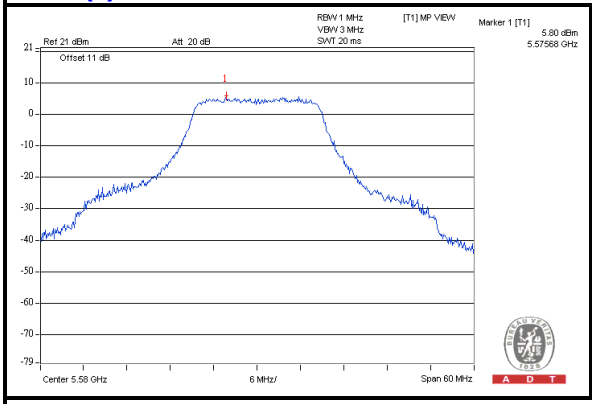
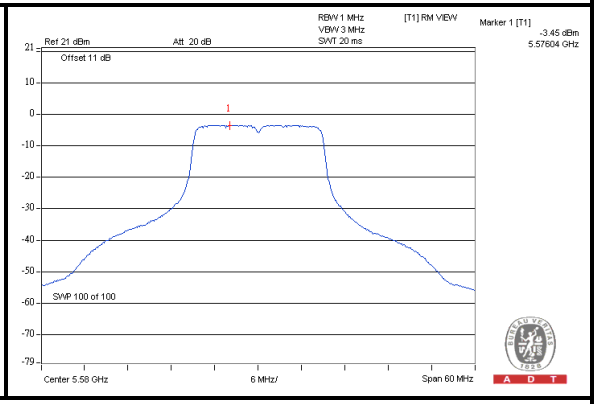
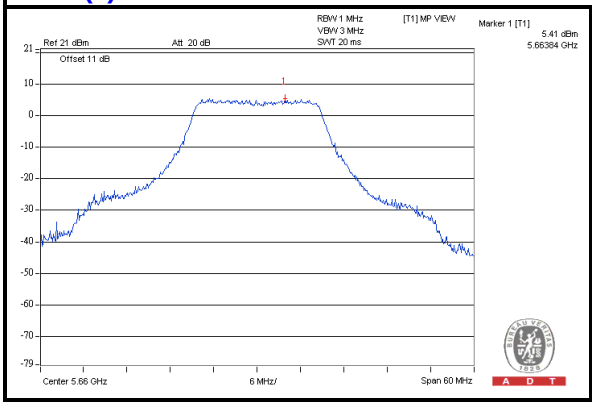
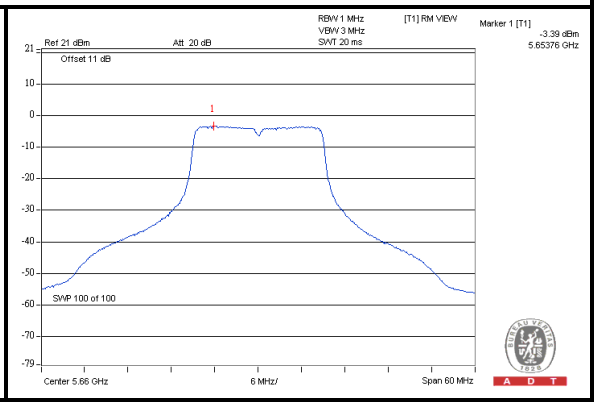
PEAK VALUE	PPSD
Chain(1) : CH140	
	

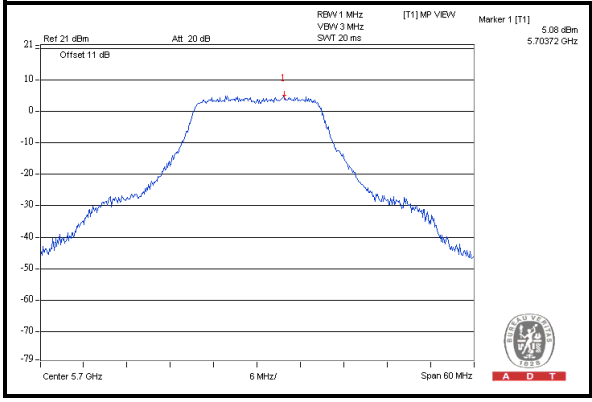
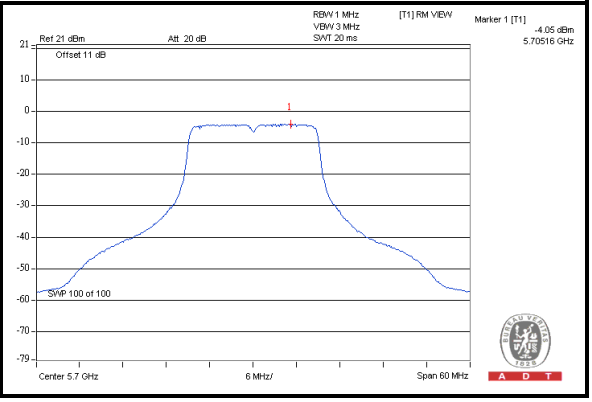
802.11n (HT20)

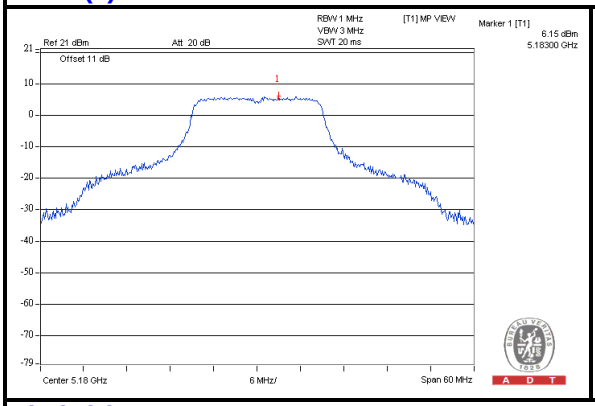
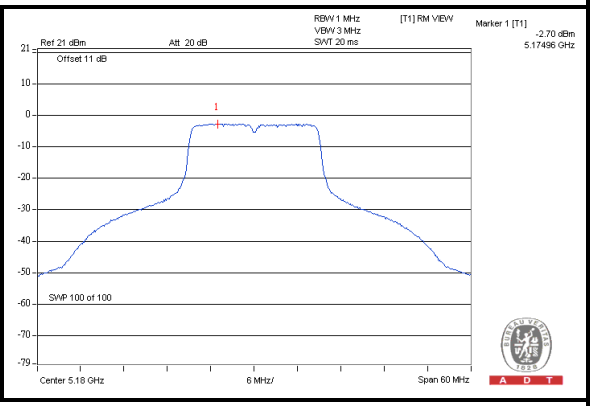
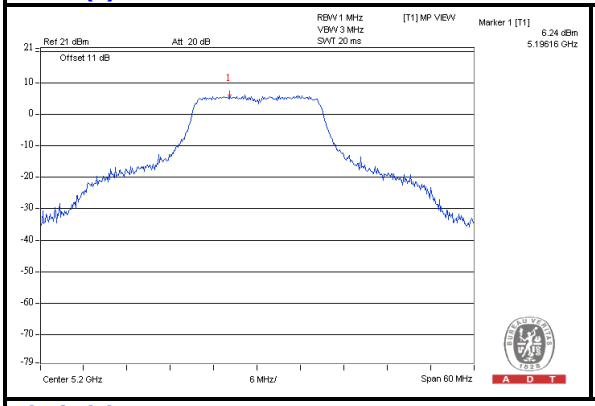
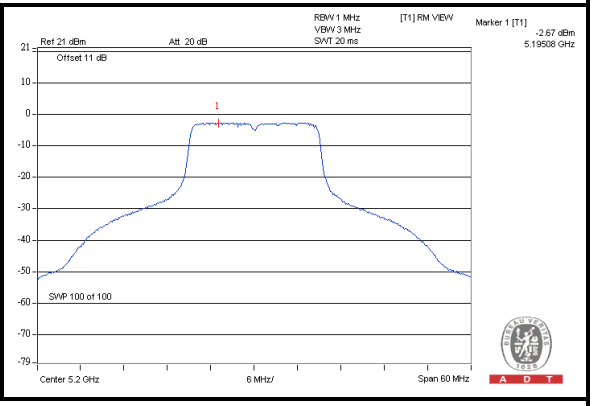
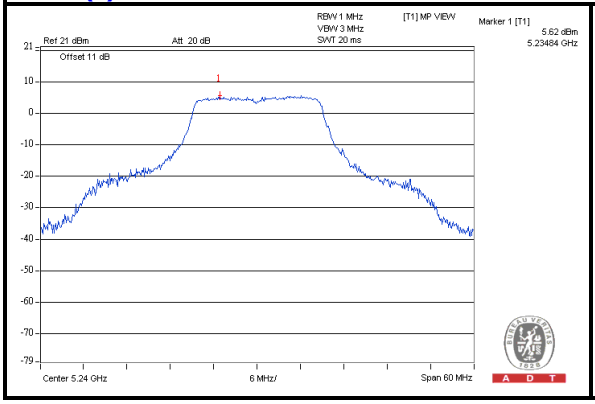
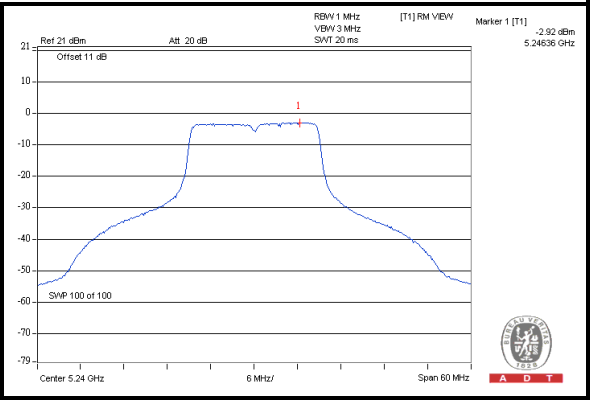
CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
36	5180	4.82	6.15	-4.30	-2.89	9.12	9.04	13	PASS
40	5200	4.63	6.24	-4.29	-2.80	8.92	9.04	13	PASS
48	5240	4.78	5.62	-4.17	-3.37	8.95	8.99	13	PASS
52	5260	5.25	5.03	-3.96	-3.63	9.21	8.66	13	PASS
60	5300	4.25	4.60	-4.47	-4.31	8.72	8.91	13	PASS
64	5320	4.46	4.69	-4.73	-4.06	9.19	8.75	13	PASS
100	5500	6.07	5.23	-3.55	-3.83	9.62	9.06	13	PASS
116	5580	5.80	4.65	-3.48	-3.90	9.28	8.55	13	PASS
132	5660	5.41	5.94	-3.58	-2.63	8.99	8.57	13	PASS
140	5700	5.08	7.24	-4.46	-1.68	9.54	8.92	13	PASS

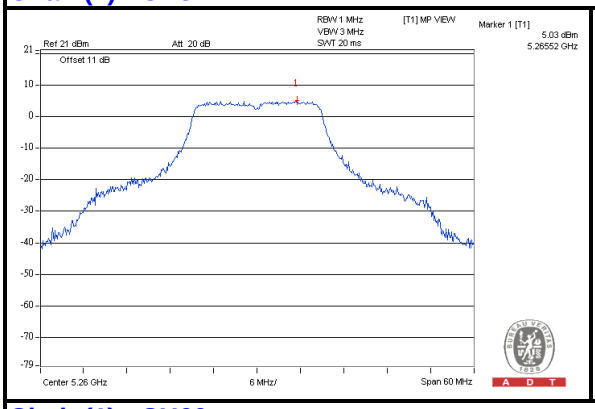
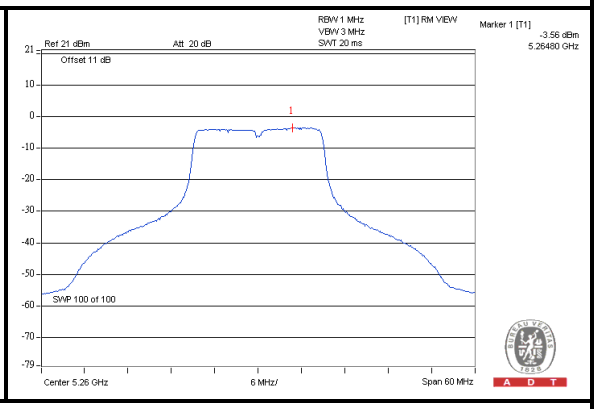
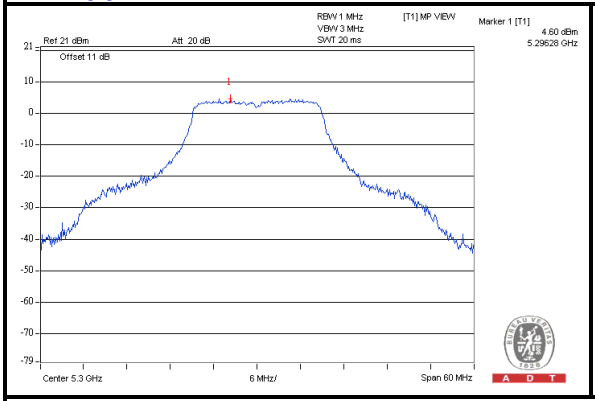
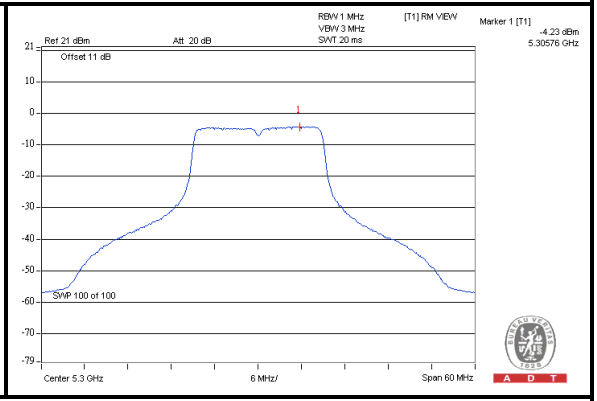
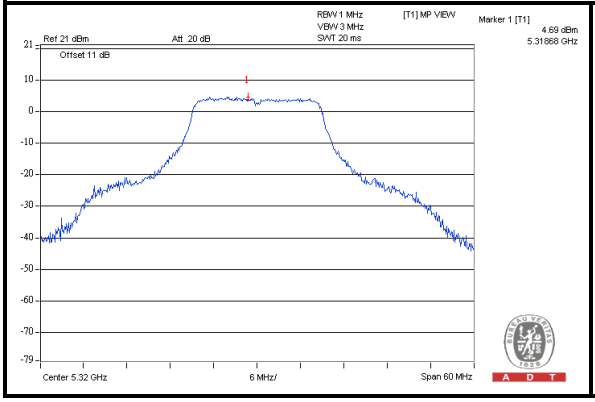
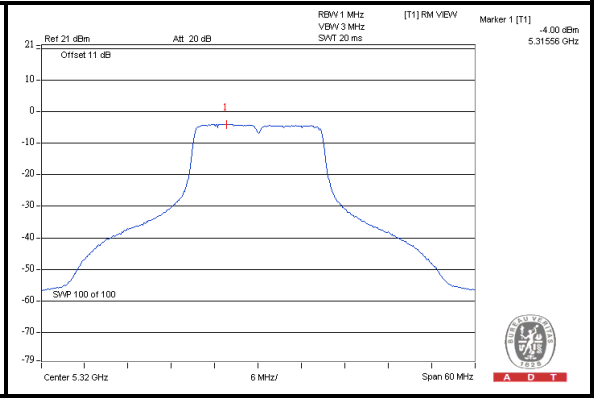
PEAK VALUE	PPSD
Chain(0) : CH36	
	
Chain(0) : CH40	
	
Chain(0) : CH48	
	

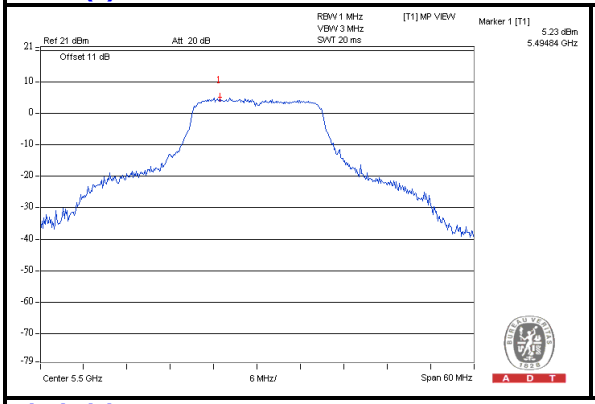
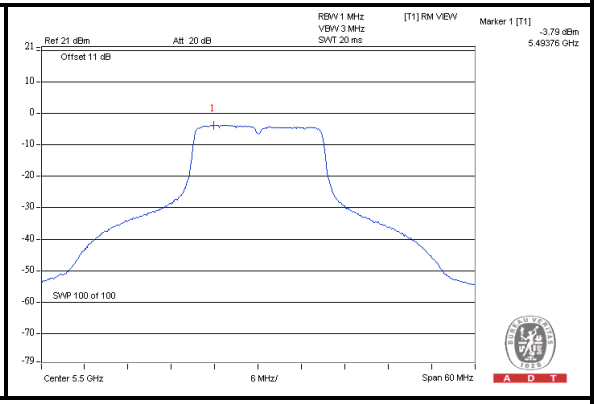
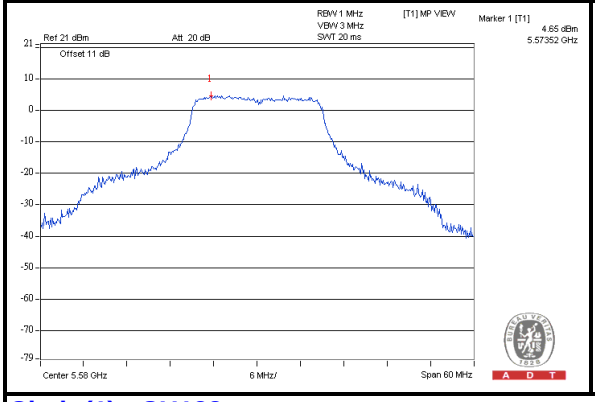
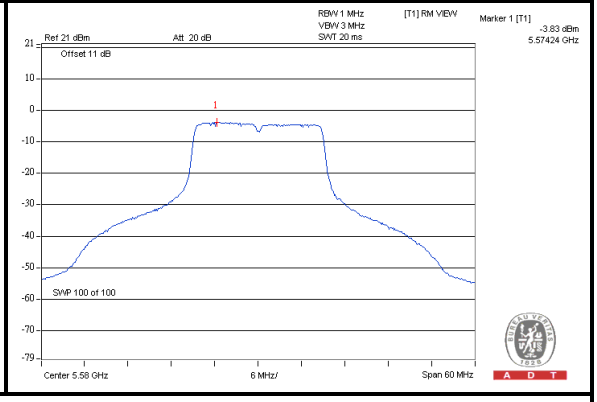
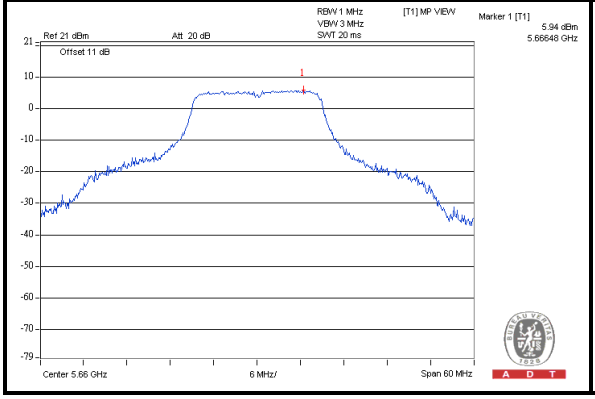
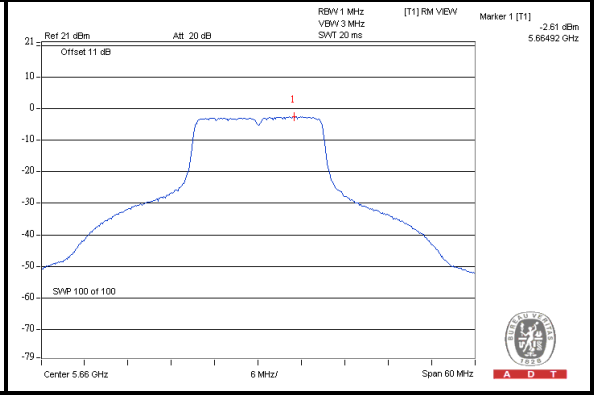
PEAK VALUE	PPSD
Chain(0) : CH52	
	
Chain(0) : CH60	
	
Chain(0) : CH64	
	

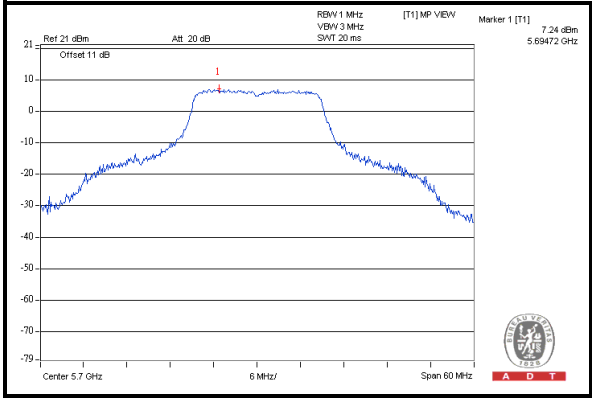
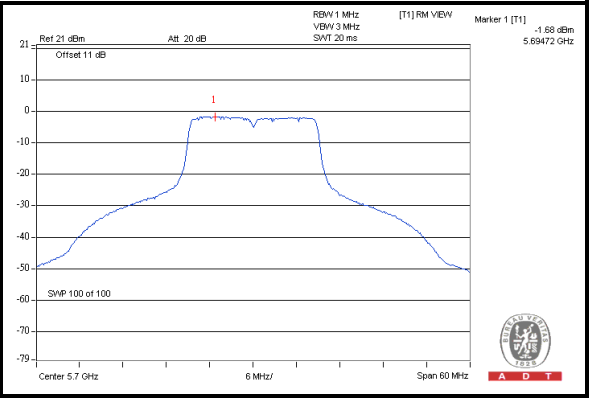
PEAK VALUE	PPSD
Chain(0) : CH100	
	
Chain(0) : CH116	
	
Chain(0) : CH132	
	

PEAK VALUE	PPSD
Chain(0) : CH140	
	

PEAK VALUE	PPSD
Chain(1) : CH36	
	
Chain(1) : CH40	
	
Chain(1) : CH48	
	

PEAK VALUE	PPSD
Chain(1) : CH52	
	
Chain(1) : CH60	
	
Chain(1) : CH64	
	

PEAK VALUE	PPSD
Chain(1) : CH100	
	
Chain(1) : CH116	
	
Chain(1) : CH132	
	

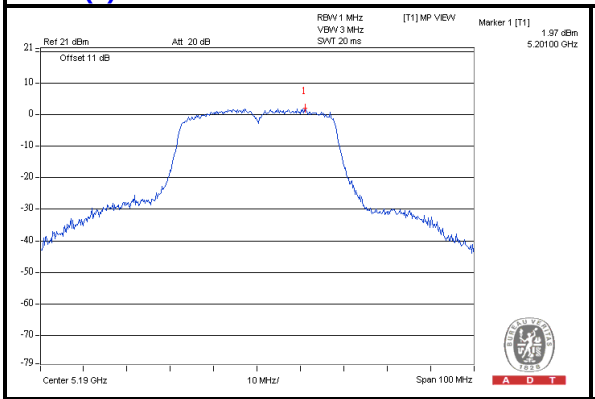
PEAK VALUE	PPSD
Chain(1) : CH140	
	

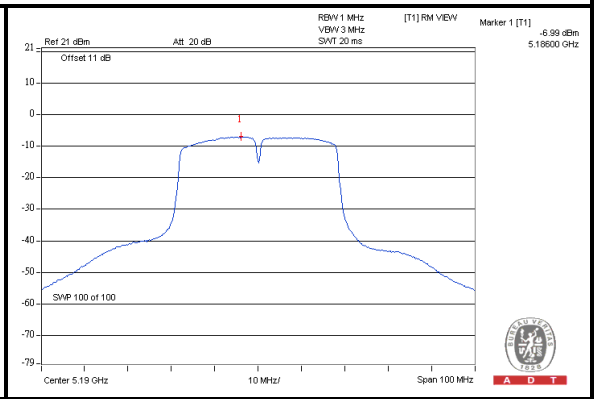
802.11n (HT40)

CHAN.	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/ FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
38	5190	1.97	2.33	-7.04	-6.76	9.01	9.09	13	PASS
46	5230	2.79	3.09	-6.67	-5.85	9.46	8.94	13	PASS
54	5270	2.04	2.69	-7.11	-6.25	9.15	8.94	13	PASS
62	5310	2.37	2.15	-7.40	-6.88	9.77	9.03	13	PASS
102	5510	0.19	0.08	-9.48	-9.10	9.67	9.18	13	PASS
110	5550	2.62	2.66	-6.80	-6.43	9.42	9.09	13	PASS
134	5670	2.27	3.69	-6.93	-4.97	9.20	8.66	13	PASS

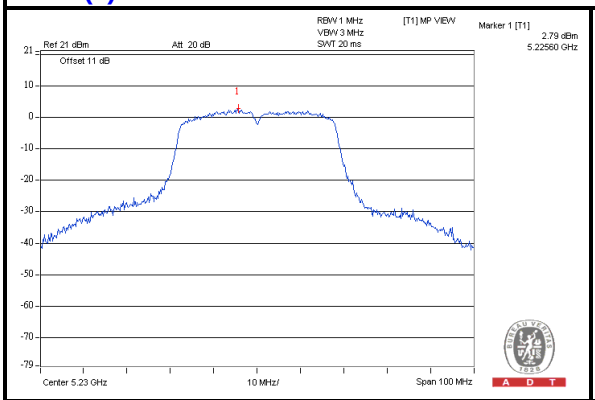
PEAK VALUE	PPSD

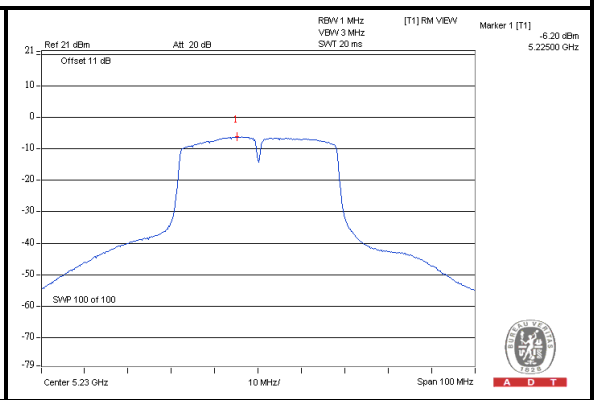
Chain(0) : CH38



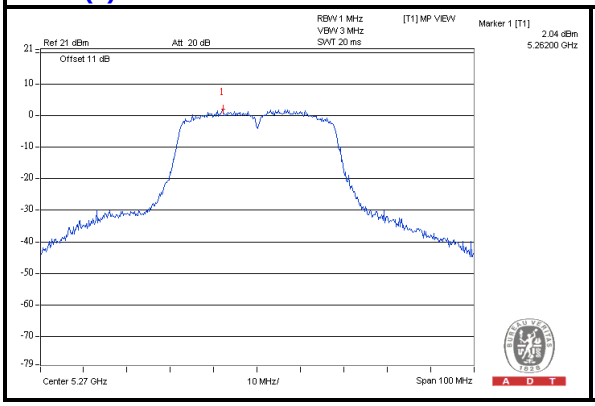


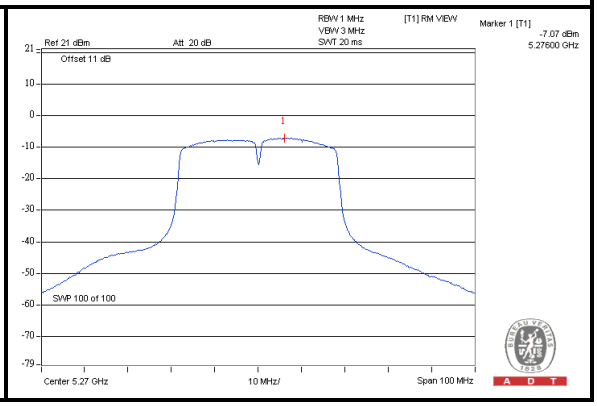
Chain(0) : CH46

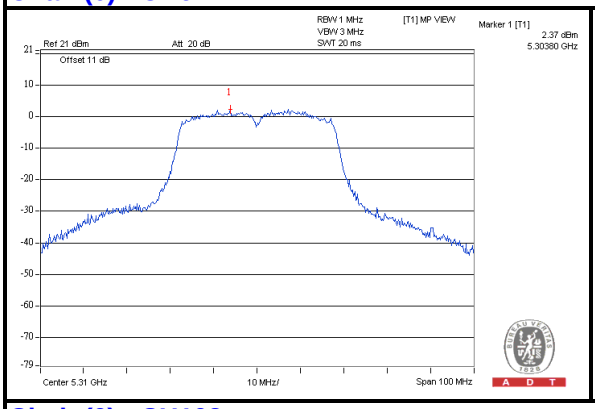
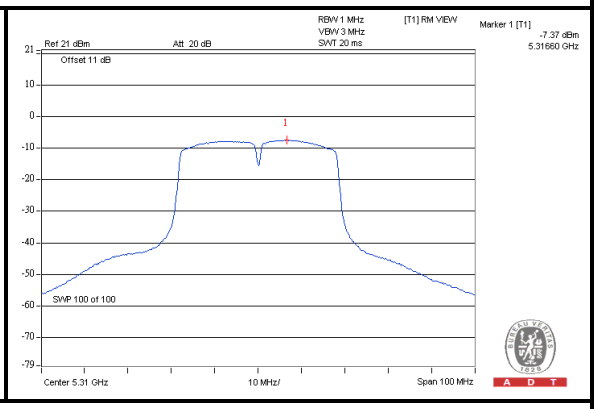
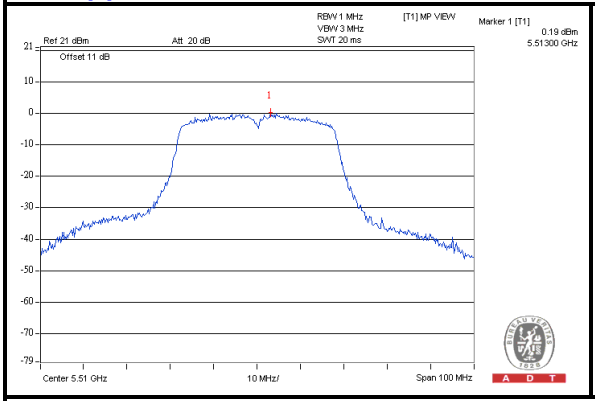
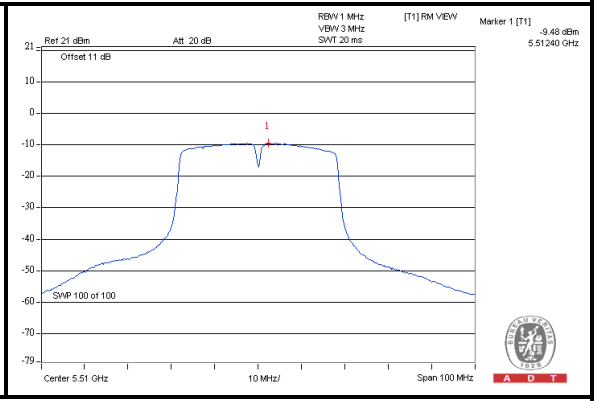
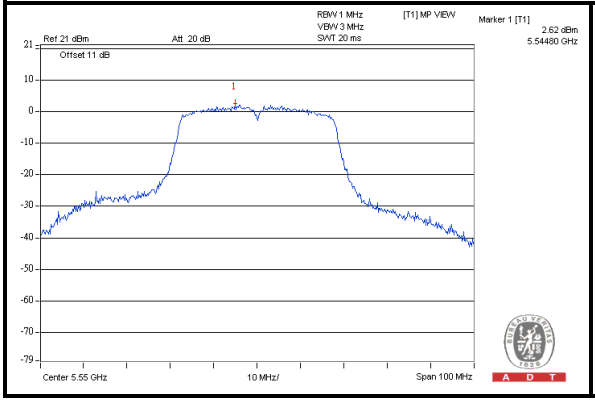
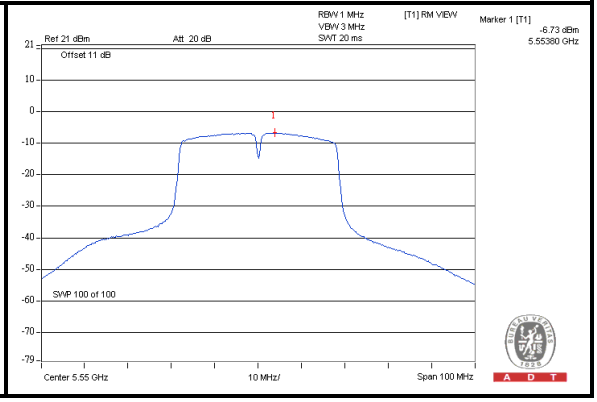


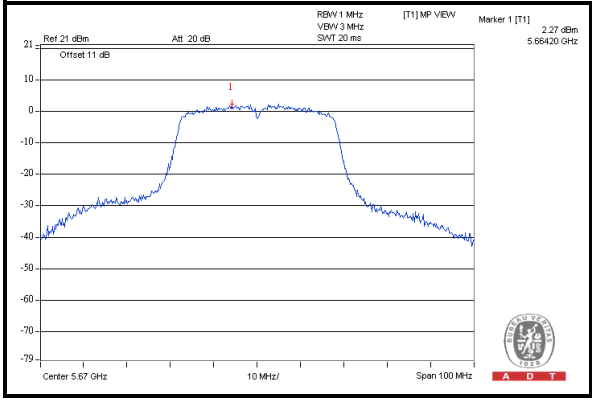
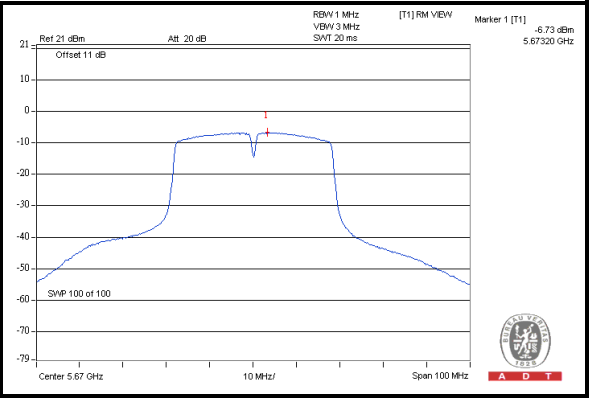


Chain(0) : CH54



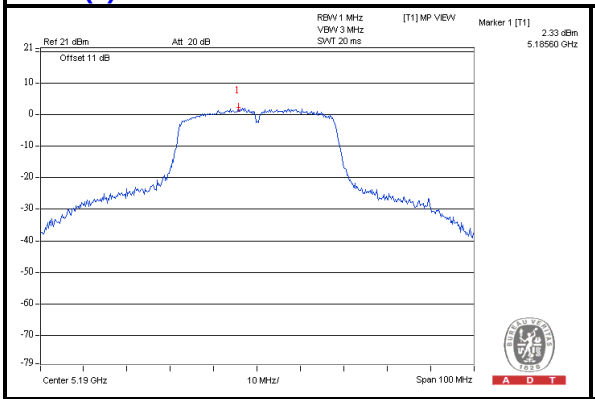


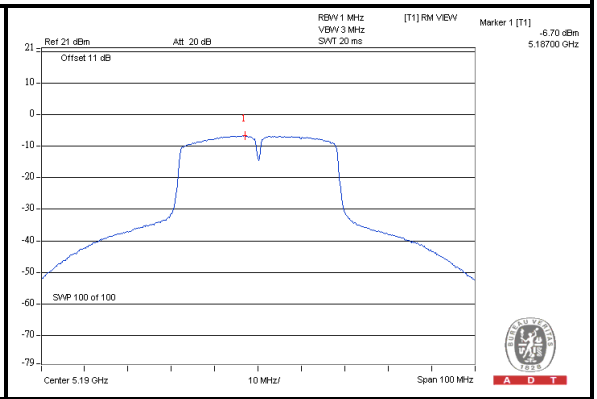
PEAK VALUE	PPSD
Chain(0) : CH62	
	
Chain(0) : CH102	
	
Chain(0) : CH110	
	

PEAK VALUE	PPSD
Chain(0) : CH134	
	

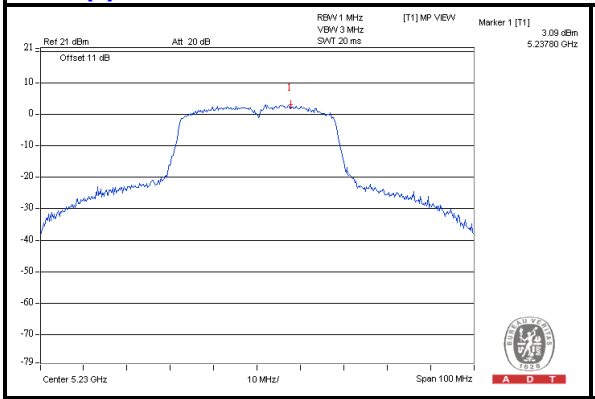
PEAK VALUE	PPSD

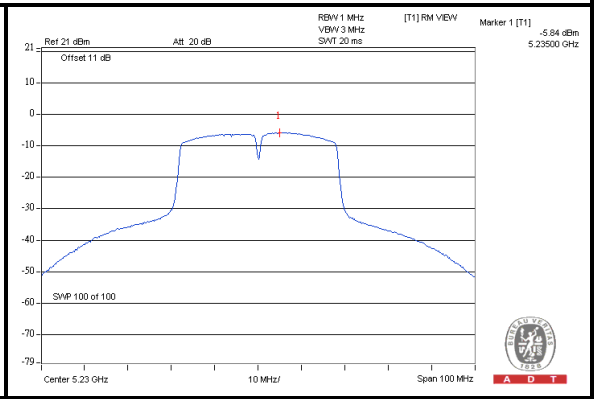
Chain(1) : CH38



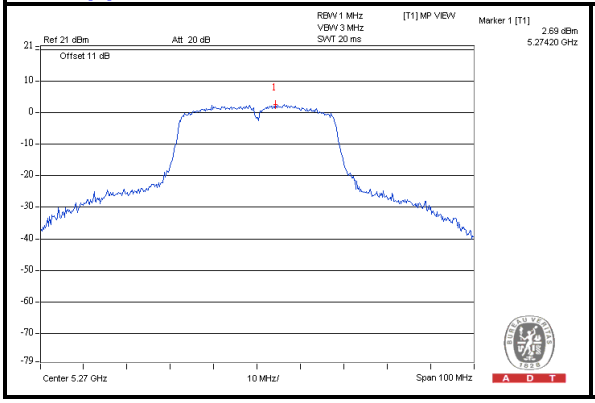


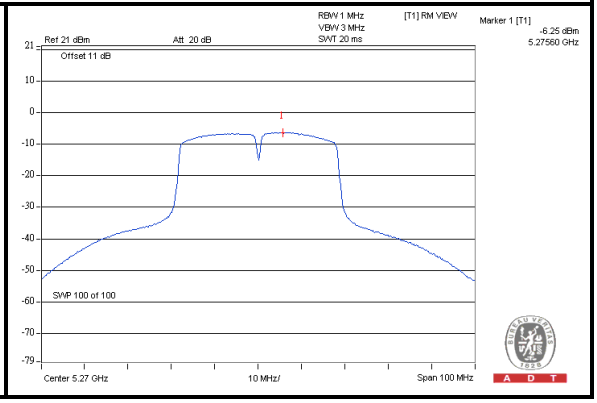
Chain(1) : CH46

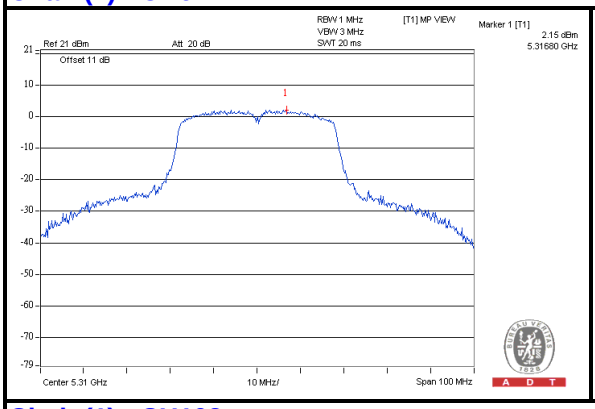
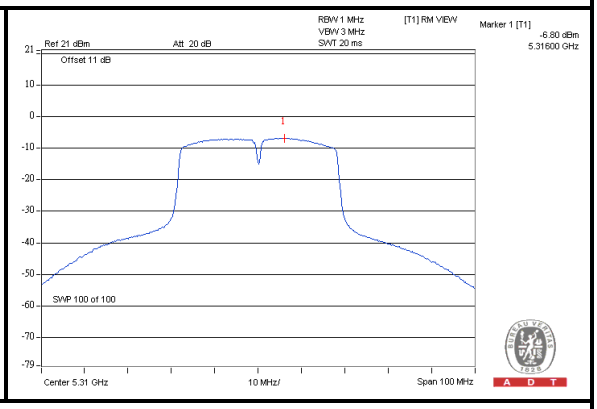
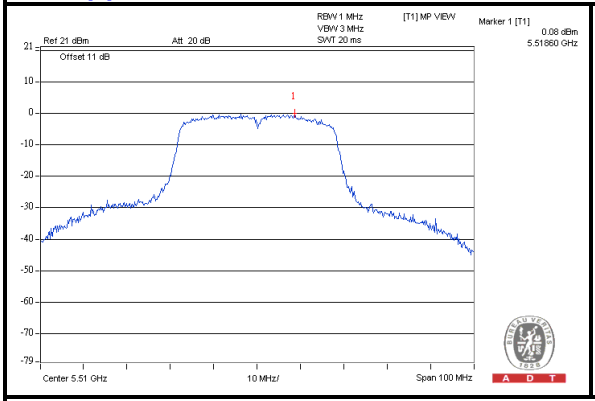
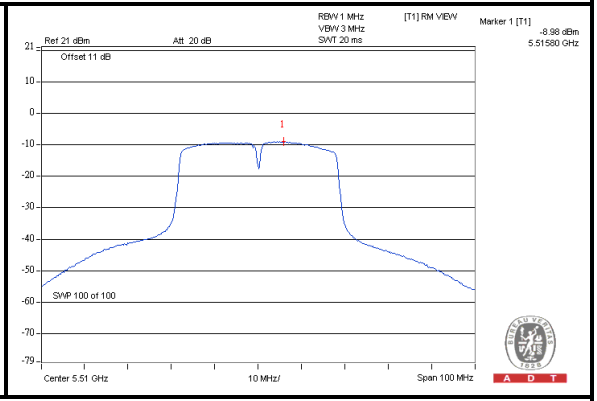
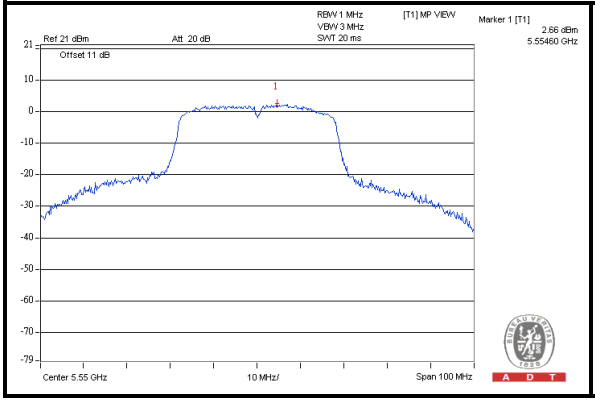
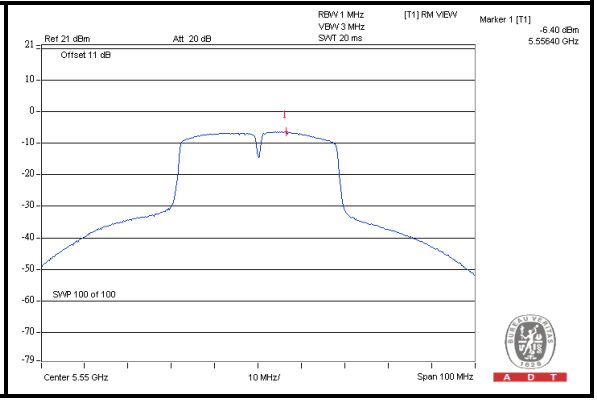


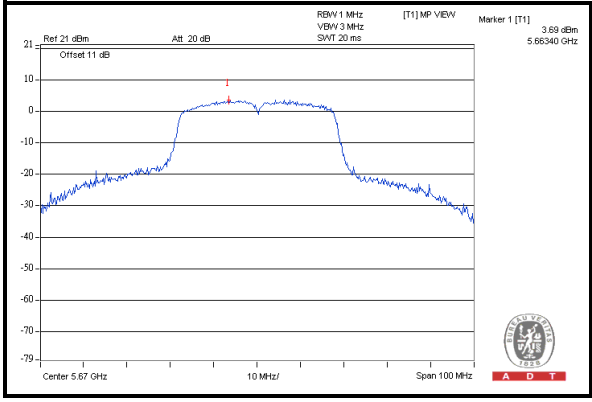
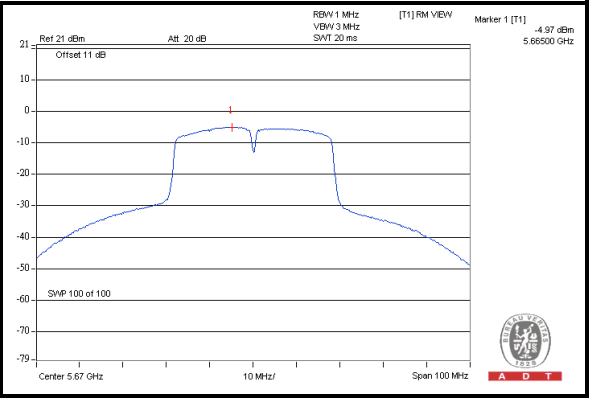


Chain(1) : CH54





PEAK VALUE	PPSD
Chain(1) : CH62	
	
Chain(1) : CH102	
	
Chain(1) : CH110	
	

PEAK VALUE	PPSD
Chain(1) : CH134	
	

4.4 OCCUPIED BANDWIDTH MEASUREMENT

4.4.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100036	Dec. 14, 2011	Dec. 13, 2012

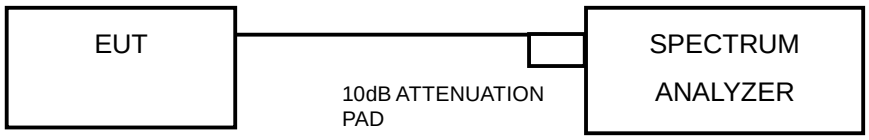
Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

4.4.2 TEST PROCEDURE

1. Set RBW ≥ 1% of the emission bandwidth.
2. Set the VBW > 3 × RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Record the 99% emission bandwidth.

4.4.3 TEST SETUP



4.4.4 EUT OPERATING CONDITIONS

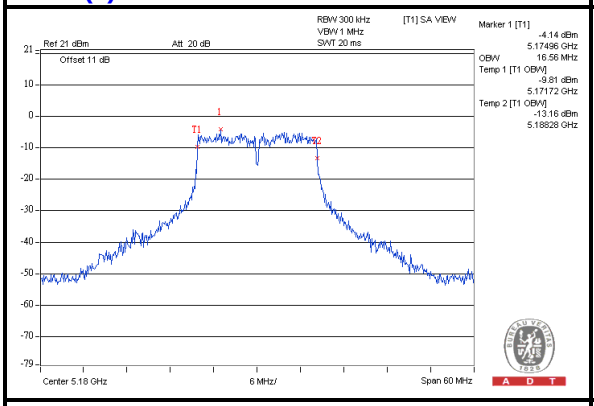
The software(artgui.exe [art2_ver_3_14_Jupiter]) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.5 TEST RESULTS

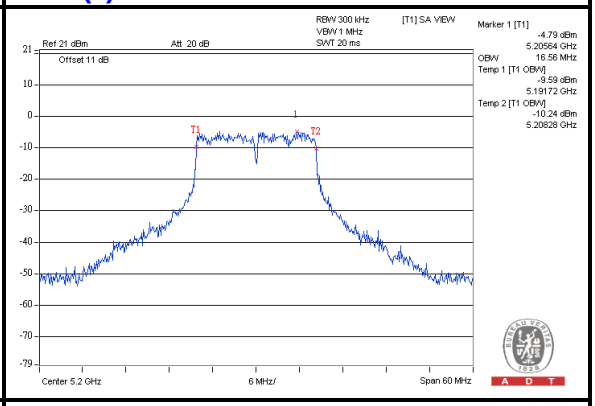
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	16.56	17.16
40	5200	16.56	17.28
48	5240	16.56	16.92
52	5260	16.56	16.56
60	5300	16.56	16.56
64	5320	16.56	16.56
100	5500	16.56	17.04
116	5580	16.56	16.92
132	5660	16.56	17.16
140	5700	16.56	17.04

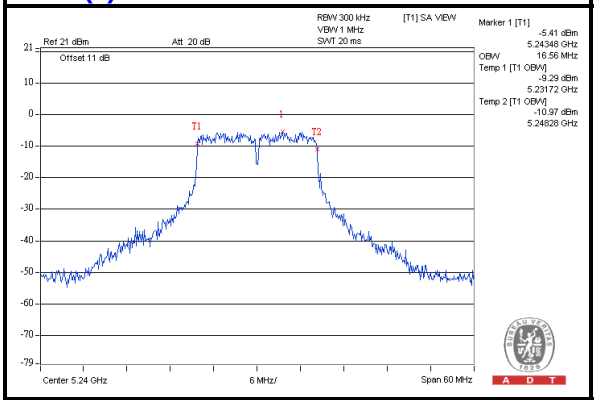
Chain(0) : CH36



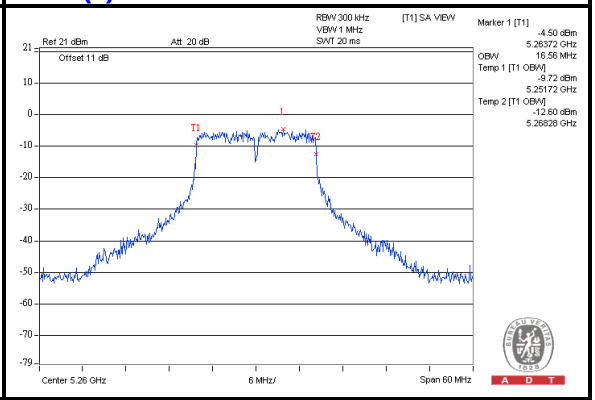
Chain(0) : CH40



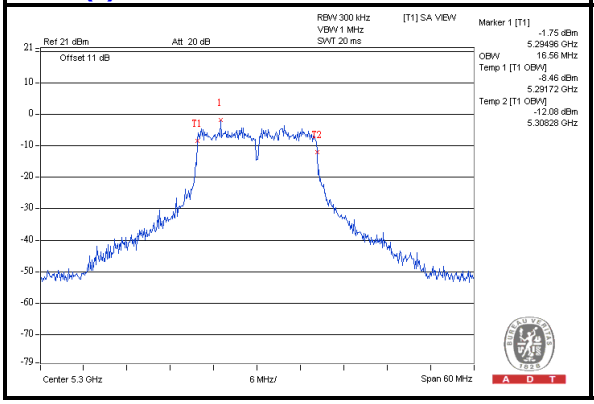
Chain(0) : CH48



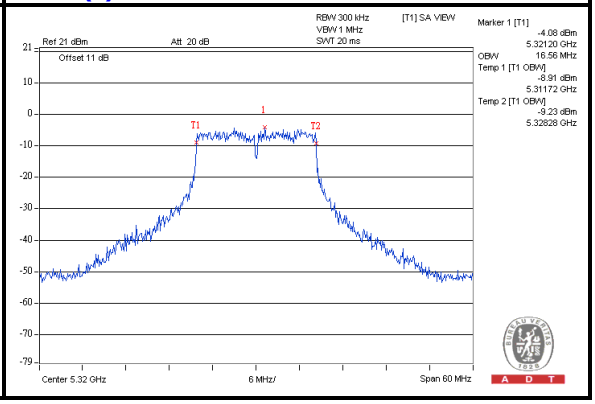
Chain(0) : CH52



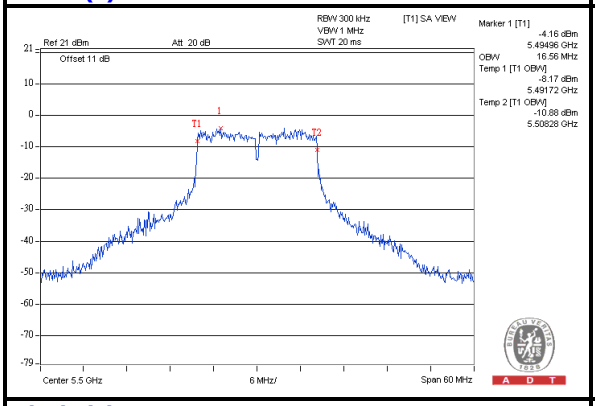
Chain(0) : CH60



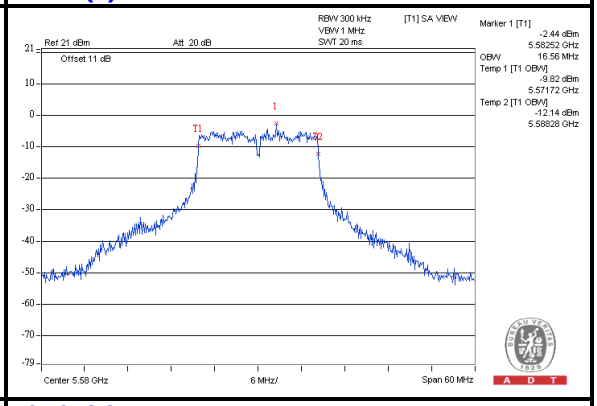
Chain(0) : CH64



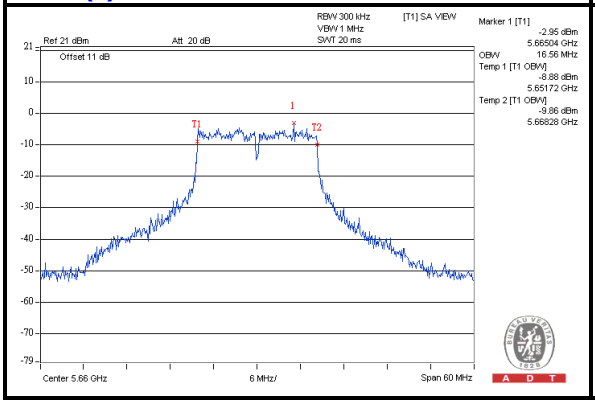
Chain(0) : CH100



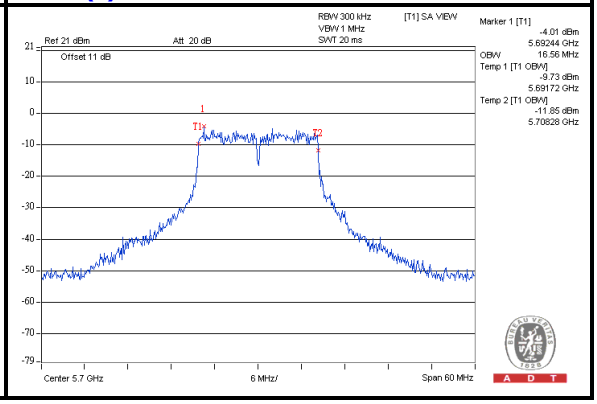
Chain(0) : CH116



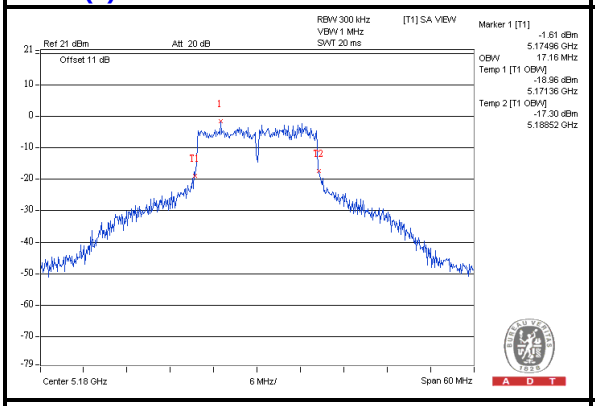
Chain(0) : CH132



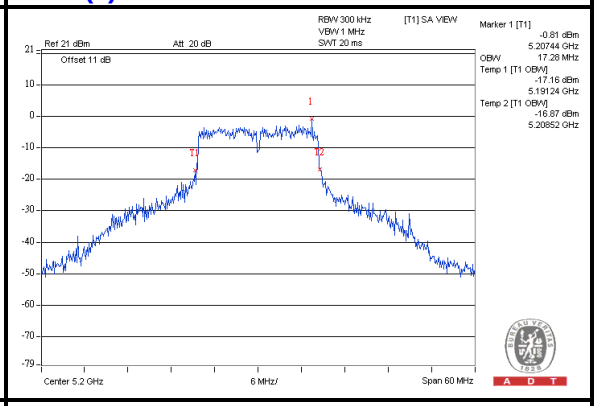
Chain(0) : CH140



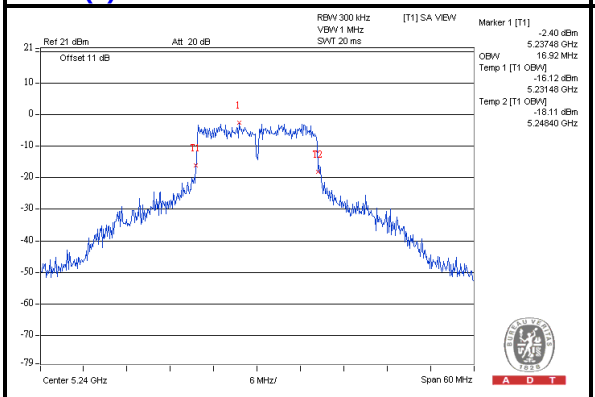
Chain(1) : CH36



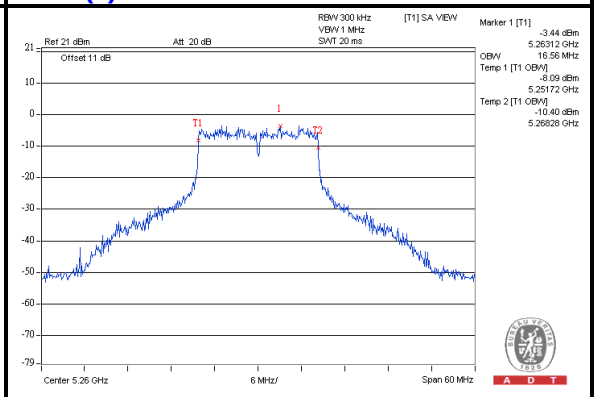
Chain(1) : CH40



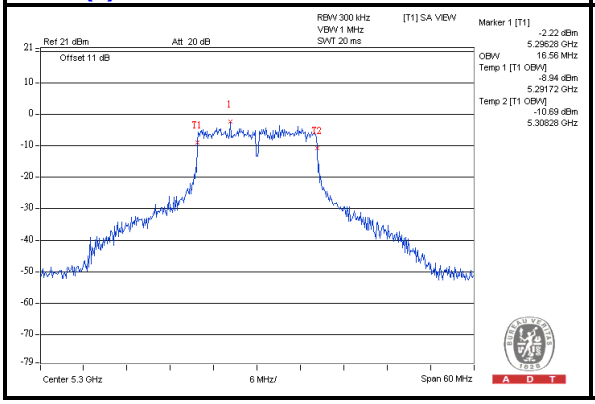
Chain(1) : CH48



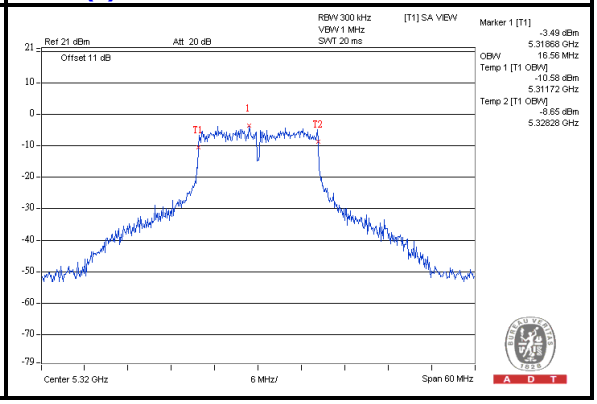
Chain(1) : CH52



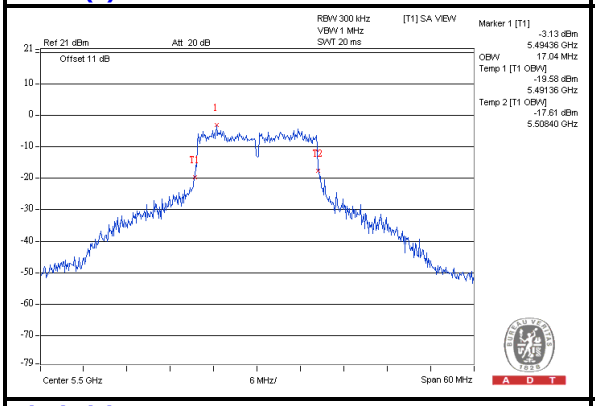
Chain(1) : CH60



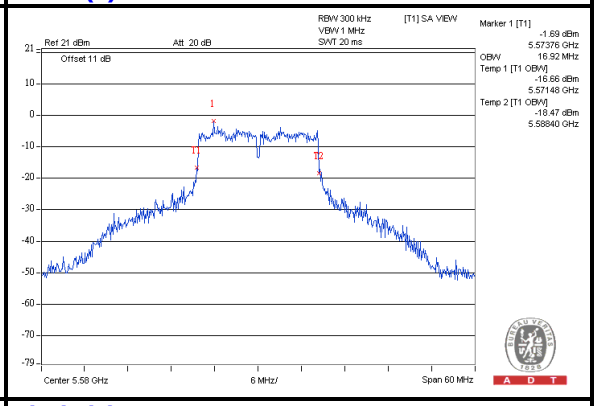
Chain(1) : CH64



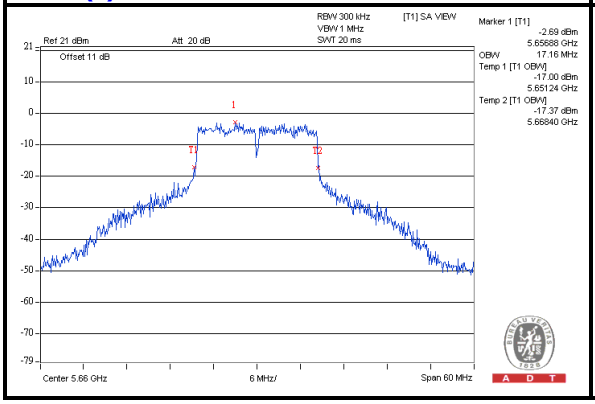
Chain(1) : CH100



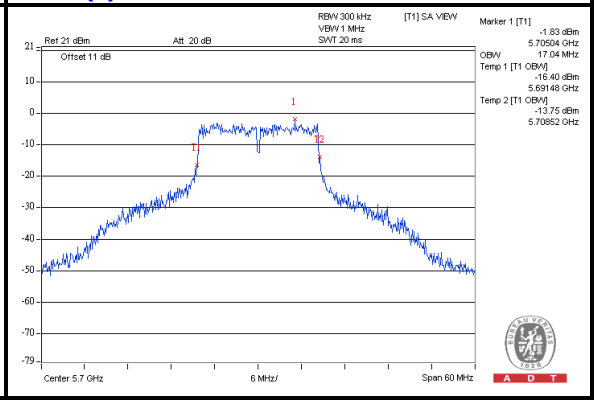
Chain(1) : CH116



Chain(1) : CH132



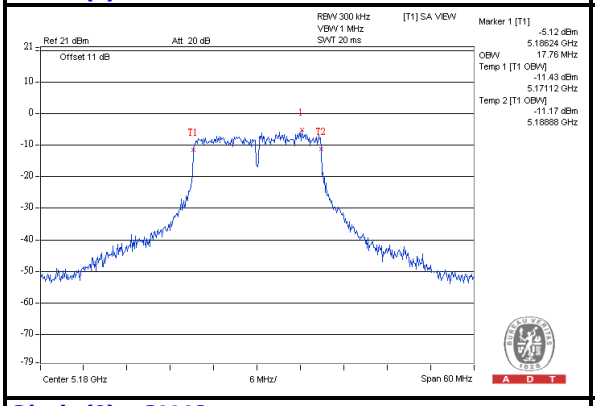
Chain(1) : CH140



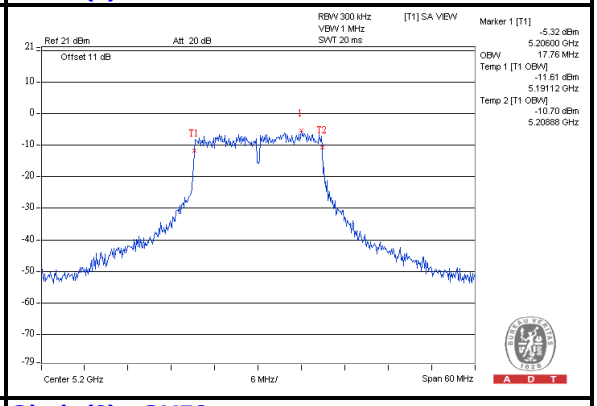
802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	17.76	17.88
40	5200	17.76	18.00
48	5240	17.76	17.76
52	5260	17.76	17.76
60	5300	17.76	17.76
64	5320	17.76	17.76
100	5500	17.76	17.88
116	5580	17.76	17.76
132	5660	17.76	17.88
140	5700	17.76	18.00

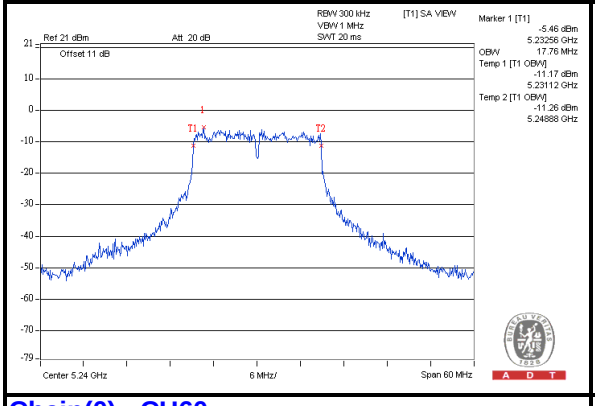
Chain(0) : CH36



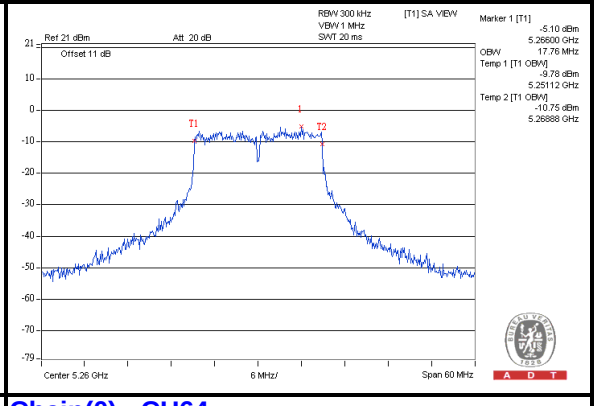
Chain(0) : CH40



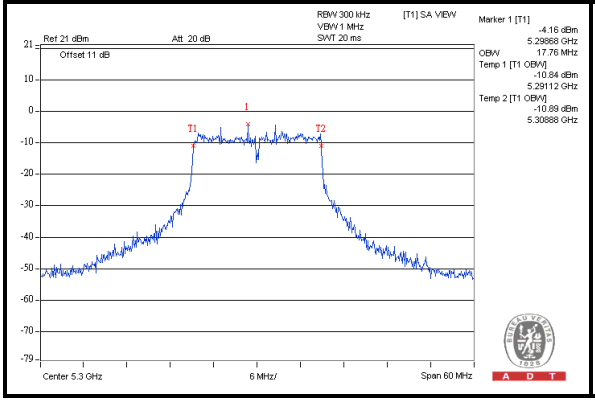
Chain(0) : CH48



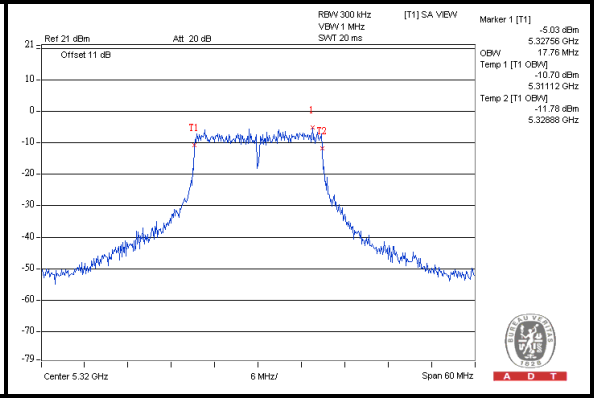
Chain(0) : CH52



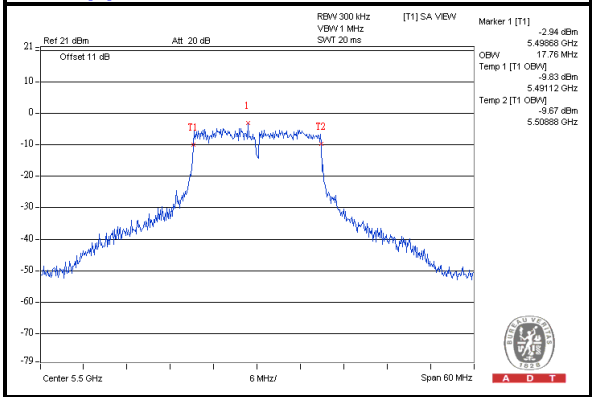
Chain(0) : CH60



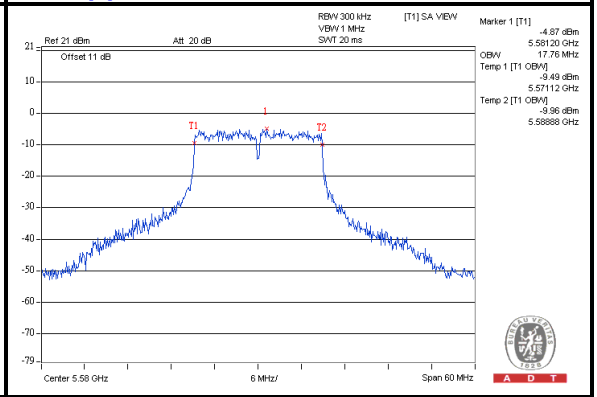
Chain(0) : CH64



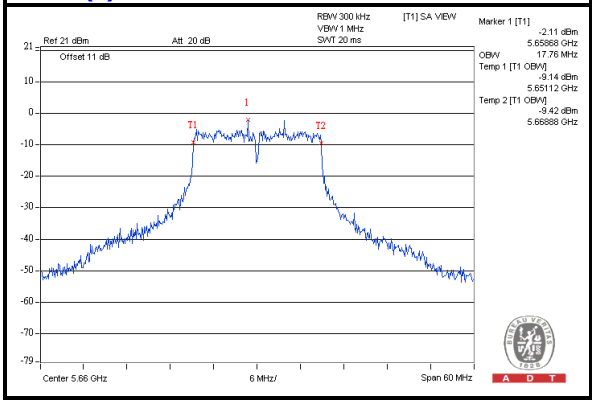
Chain(0) : CH100



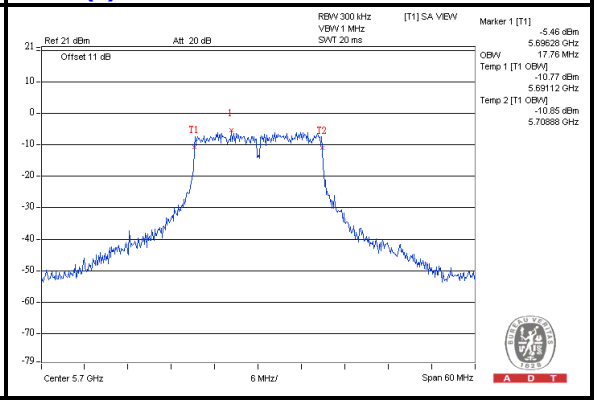
Chain(0) : CH116



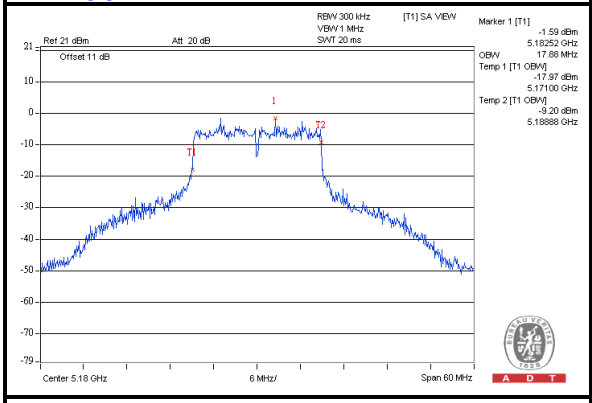
Chain(0) : CH132



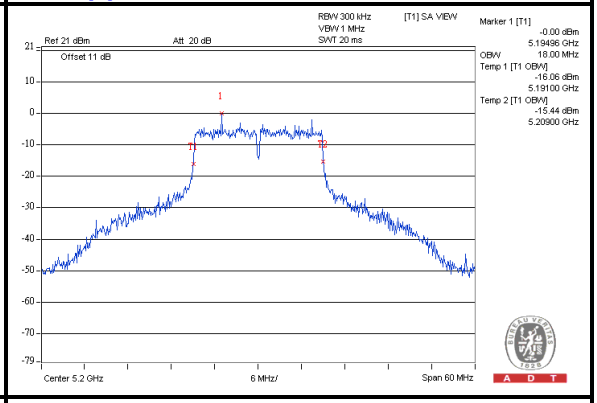
Chain(0) : CH140



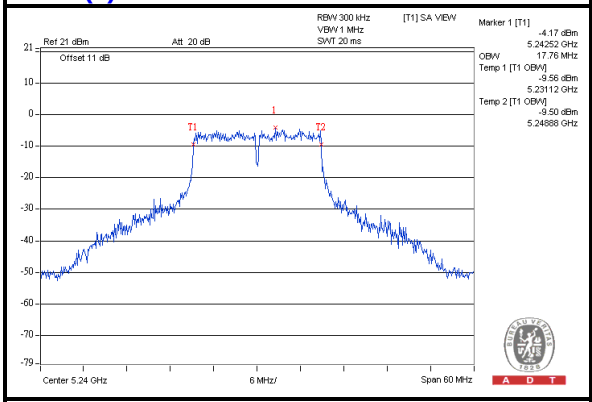
Chain(1) : CH36



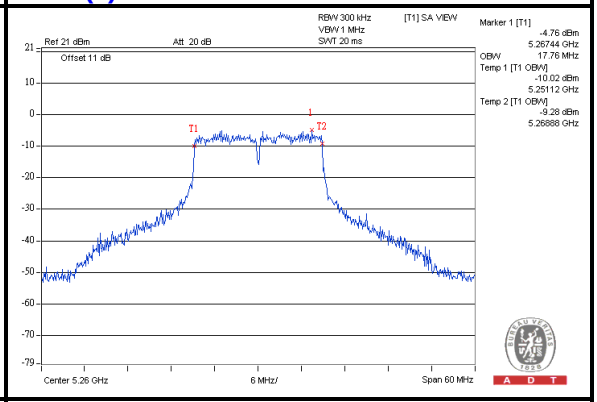
Chain(1) : CH40



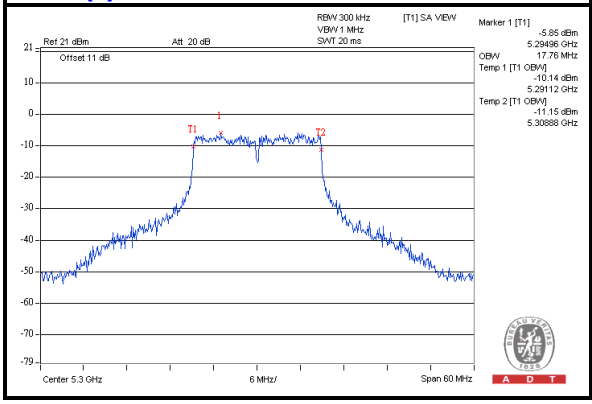
Chain(1) : CH48



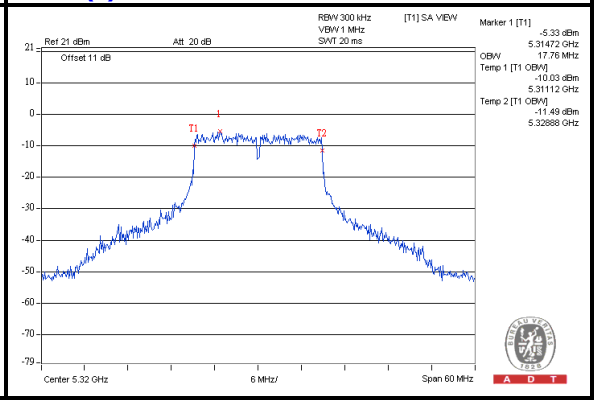
Chain(1) : CH52



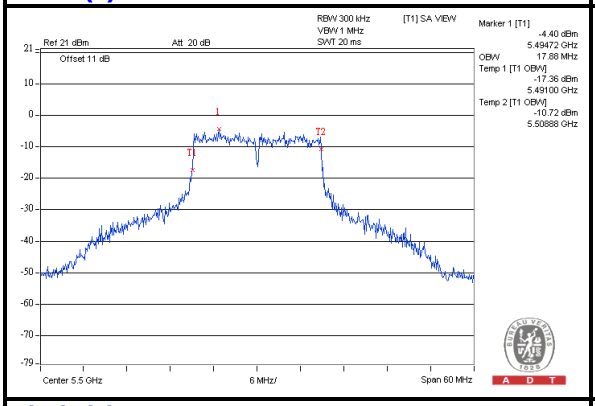
Chain(1) : CH60



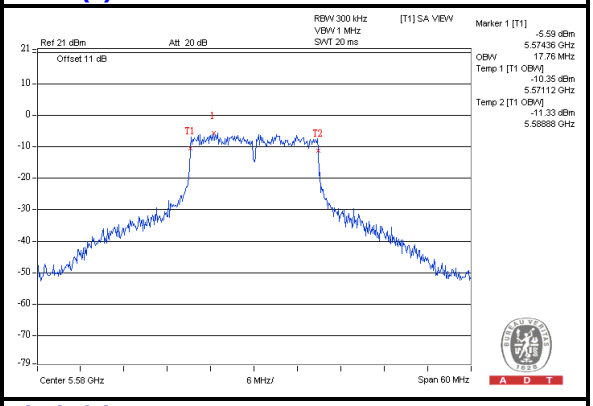
Chain(1) : CH64



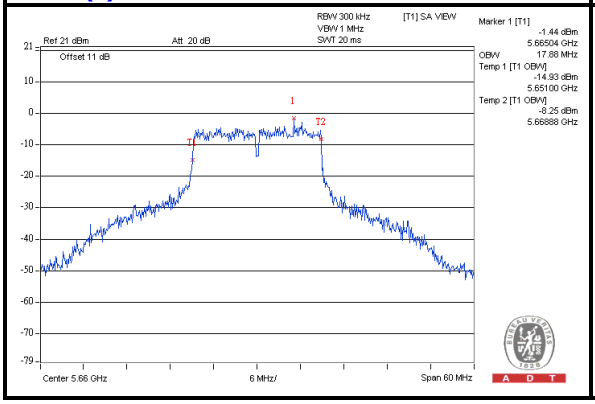
Chain(1) : CH100



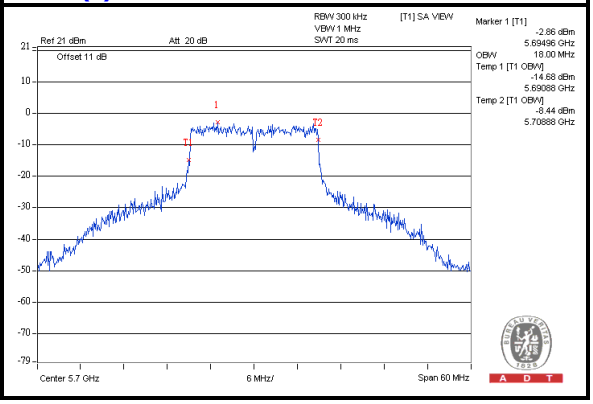
Chain(1) : CH116



Chain(1) : CH132



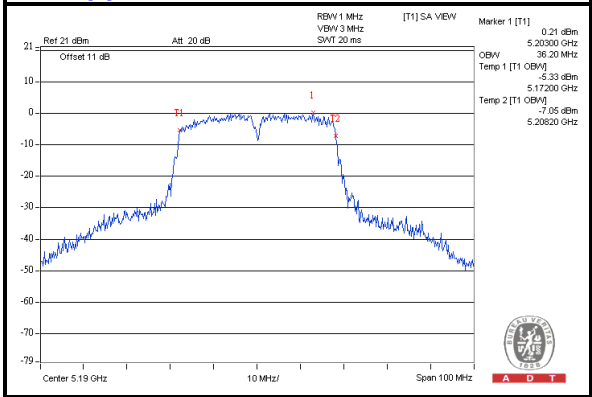
Chain(1) : CH140



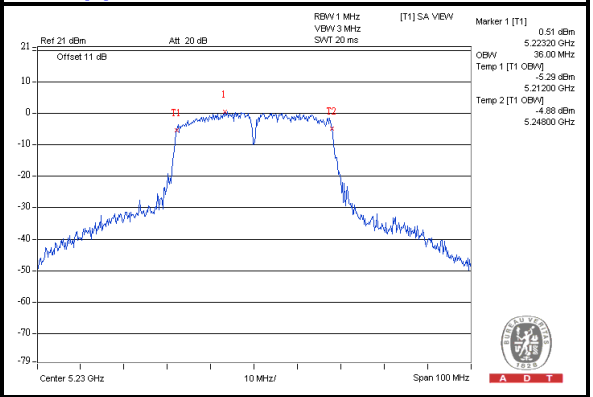
802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
38	5190	36.20	36.40
46	5230	36.00	36.40
54	5270	36.20	36.20
62	5310	36.20	36.20
102	5510	36.20	36.20
110	5550	36.20	36.40
134	5670	36.40	36.60

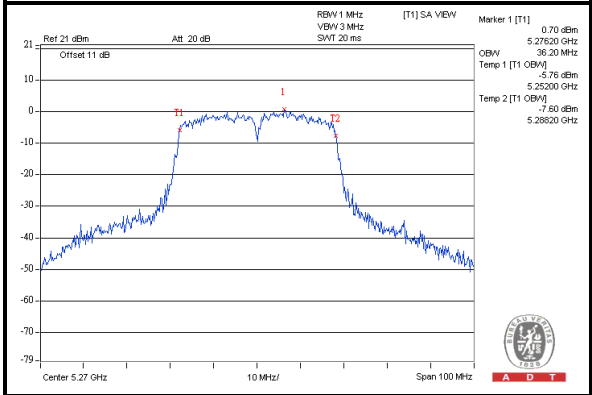
Chain(0) : CH38



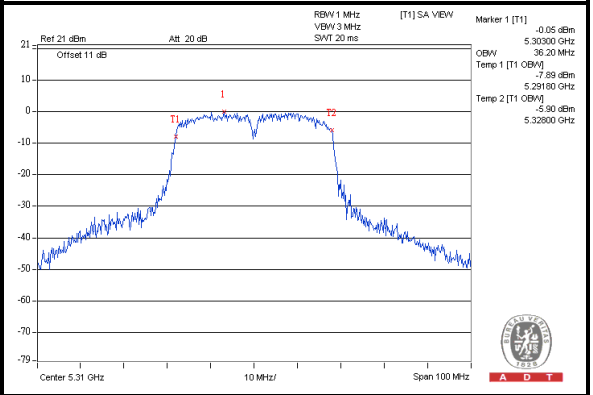
Chain(0) : CH46



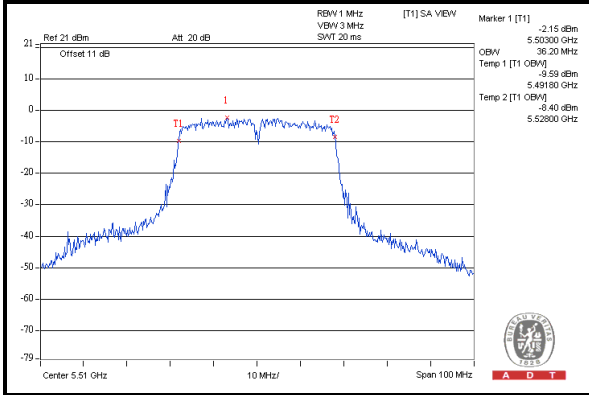
Chain(0) : CH54



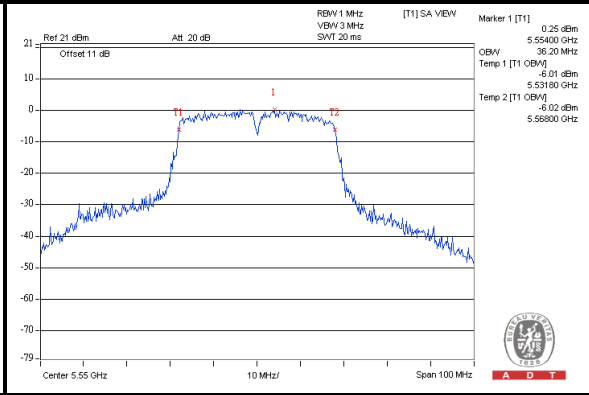
Chain(0) : CH62



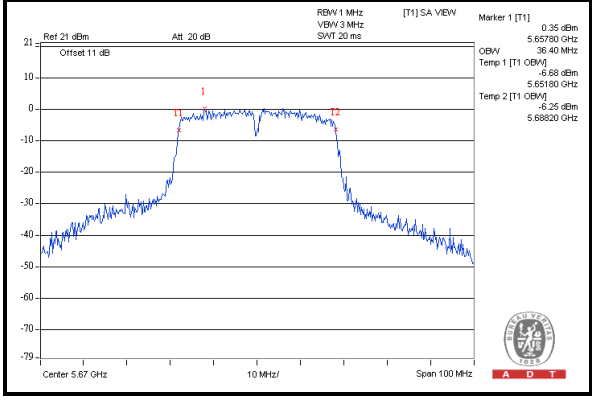
Chain(0) : CH102



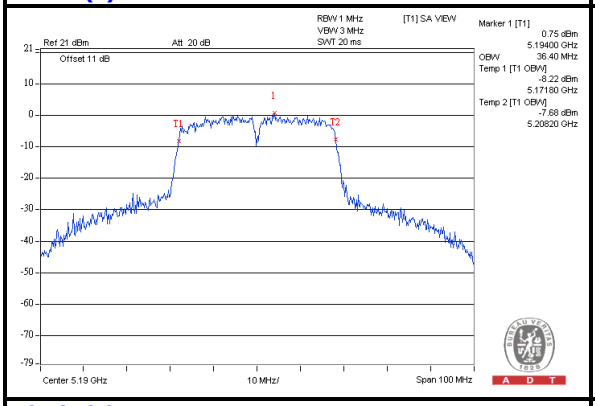
Chain(0) : CH110



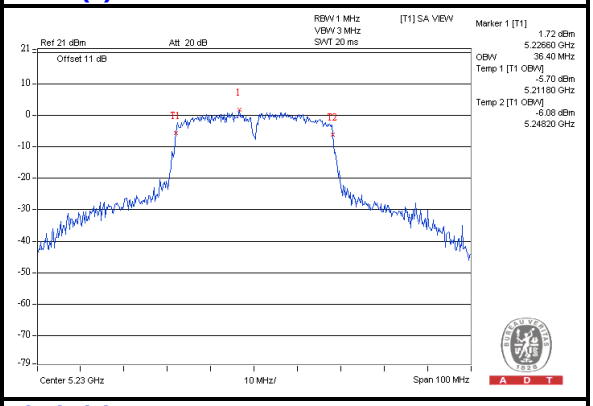
Chain(0) : CH134



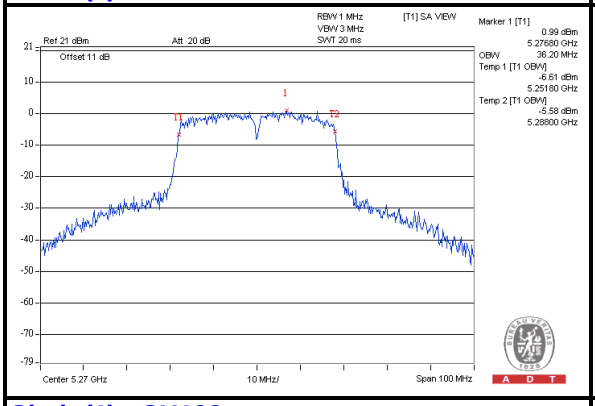
Chain(1) : CH38



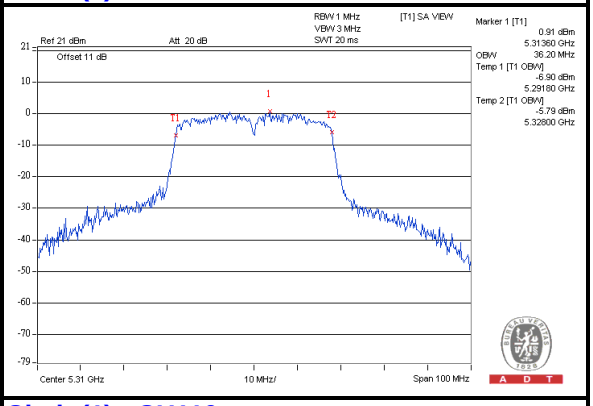
Chain(1) : CH46



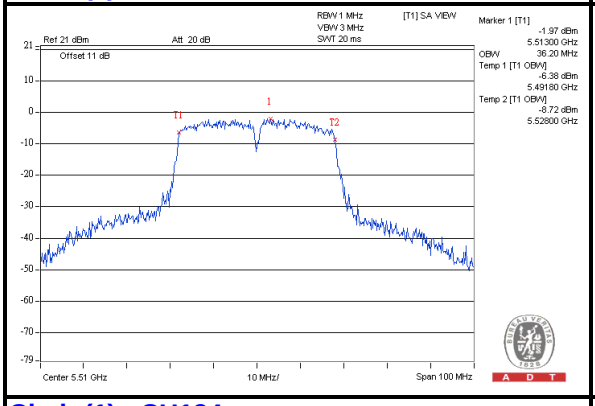
Chain(0) : CH54



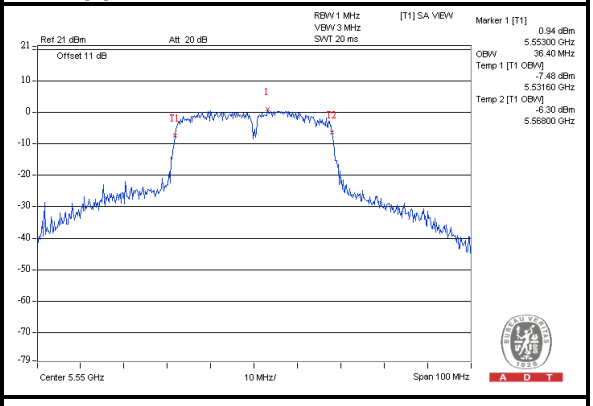
Chain(0) : CH62



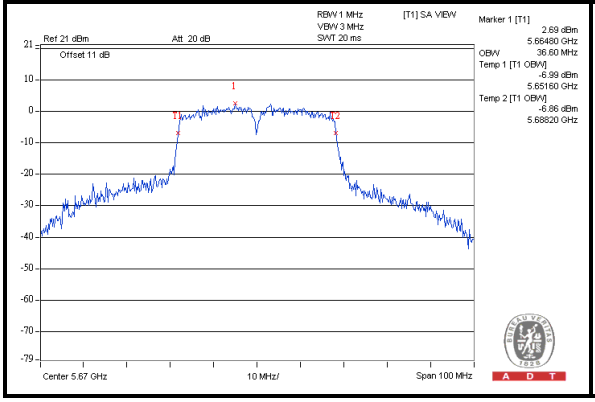
Chain(1) : CH102



Chain(1) : CH110



Chain(1) : CH134



4.5 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.5.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.5.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	**EIRP Limit (dBm)**	**Equivalent Field Strength at 3m (dBμV/m)** *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

4.5.3 TEST INSTRUMENTS

Below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn_Antenna AISI	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3 The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5 The VCCI Site Registration No. is G-137.
6 The CANADA Site Registration No. is IC 7450H-2.
7 Tested Date: Sep. 24, 2012

Above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
Pre-Selector Agilent	N9039A	MY46520310	Sep. 03, 2012	Sep. 02, 2013
Signal Generator Agilent	N5181A	MY49060347	July 24, 2012	July 23, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 15, 2011	Nov. 14, 2012
Pre-Amplifier Agilent	8449B	3008A02465	Feb. 27, 2012	Feb. 26, 2013
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Apr. 06, 2012	Apr. 05, 2013
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 23, 2011	Nov. 22, 2012
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 27, 2011	Dec. 26, 2012
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3 The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5 The CANADA Site Registration No. is IC 7450H-3.
6 Tested Date: Sep. 21, 2012

4.5.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meters chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

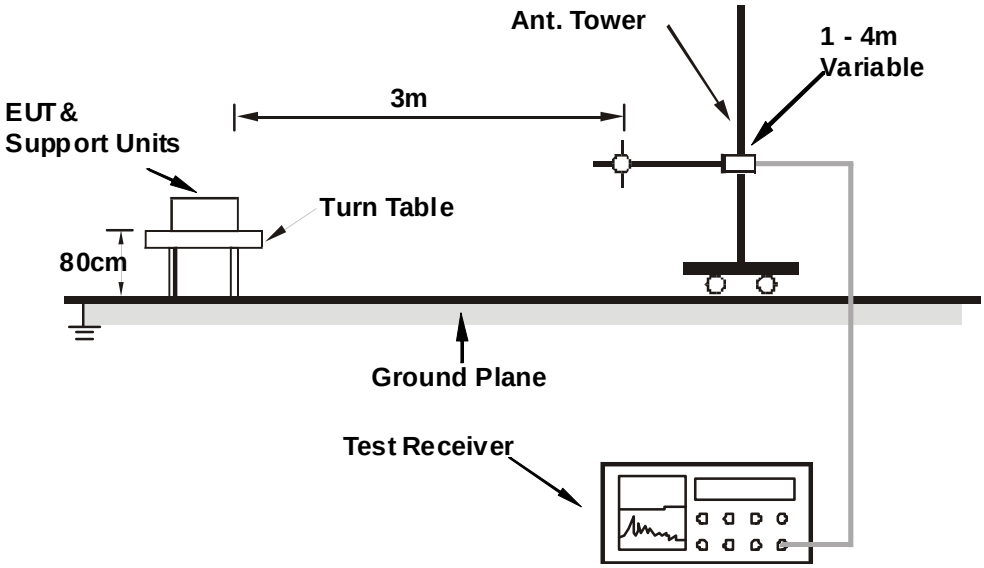
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation

4.5.6 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.5.7 EUT OPERATING CONDITION

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.

2. The communication partner run test program “artgui.exe [art2_ver_3_14_Jupiter]” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.5.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11n (HT20)

CHANNEL	TX Channel 64	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	99.80	39.9 QP	43.5	-3.7	2.00 H	163	30.00	9.85
2	157.40	39.2 QP	43.5	-4.3	1.50 H	14	24.70	14.51
3	173.31	40.0 QP	43.5	-3.5	2.00 H	360	26.49	13.51
4	299.43	34.2 QP	46.0	-11.8	1.00 H	215	18.94	15.27
5	497.75	30.1 QP	46.0	-15.9	2.00 H	346	9.81	20.33
6	666.01	32.1 QP	46.0	-13.9	2.00 H	310	8.59	23.51
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	35.00	30.9 QP	40.0	-9.2	1.00 V	360	17.80	13.05
2	99.50	34.9 QP	43.5	-8.6	1.00 V	0	25.05	9.82
3	171.20	32.0 QP	43.5	-11.5	2.00 V	308	18.37	13.64
4	284.00	28.0 QP	46.0	-18.0	1.50 V	17	13.35	14.66
5	499.20	31.5 QP	46.0	-14.6	1.00 V	308	11.08	20.37
6	663.00	30.2 QP	46.0	-15.8	1.00 V	196	6.74	23.47

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	58.1 PK	74.0	-15.9	1.00 H	303	15.80	42.30
2	5150.00	46.6 AV	54.0	-7.4	1.00 H	303	4.30	42.30
3	*5180.00	104.6 PK			1.00 H	303	62.20	42.40
4	*5180.00	95.2 AV			1.00 H	303	52.80	42.40
5	#10360.00	62.9 PK	68.3	-5.4	1.24 H	155	13.69	49.21
6	15540.00	61.8 PK	74.0	-12.2	1.03 H	251	6.70	55.10
7	15540.00	51.0 AV	54.0	-3.0	1.03 H	251	-4.10	55.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	57.7 PK	74.0	-16.3	1.00 V	271	15.40	42.30
2	5150.00	45.7 AV	54.0	-8.3	1.00 V	271	3.40	42.30
3	*5180.00	102.4 PK			1.00 V	271	60.00	42.40
4	*5180.00	93.4 AV			1.00 V	271	51.00	42.40
5	#10360.00	66.3 PK	68.3	-2.0	1.39 V	240	17.09	49.21
6	15540.00	63.0 PK	74.0	-11.0	1.04 V	220	7.90	55.10
7	15540.00	49.3 AV	54.0	-4.7	1.04 V	220	-5.80	55.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	103.8 PK			1.00 H	234	61.33	42.47
2	*5200.00	94.6 AV			1.00 H	234	52.13	42.47
3	#10400.00	62.1 PK	68.3	-6.2	1.23 H	142	13.27	48.83
4	15600.00	61.8 PK	74.0	-12.2	1.01 H	258	6.83	54.97
5	15600.00	51.1 AV	54.0	-2.9	1.01 H	258	-3.87	54.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	102.3 PK			1.00 V	271	59.83	42.47
2	*5200.00	93.1 AV			1.00 V	271	50.63	42.47
3	#10400.00	66.2 PK	68.3	-2.1	1.39 V	210	17.37	48.83
4	15600.00	62.8 PK	74.0	-11.2	1.00 V	215	7.83	54.97
5	15600.00	49.2 AV	54.0	-4.8	1.00 V	215	-5.77	54.97

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	104.0 PK			1.00 H	232	61.49	42.51
2	*5240.00	94.2 AV			1.00 H	232	51.69	42.51
3	#10480.00	62.9 PK	68.3	-5.4	1.22 H	152	13.51	49.39
4	15720.00	62.0 PK	74.0	-12.0	1.00 H	261	7.30	54.70
5	15720.00	51.6 AV	54.0	-2.4	1.00 H	261	-3.10	54.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	101.7 PK			1.00 V	270	59.19	42.51
2	*5240.00	92.6 AV			1.00 V	270	50.09	42.51
3	#10480.00	66.3 PK	68.3	-2.0	1.38 V	220	16.91	49.39
4	15720.00	62.9 PK	74.0	-11.1	1.04 V	223	8.20	54.70
5	15720.00	49.5 AV	54.0	-4.5	1.04 V	223	-5.20	54.70

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	102.4 PK			1.00 H	233	59.86	42.54
2	*5260.00	93.1 AV			1.00 H	233	50.56	42.54
3	#10520.00	62.8 PK	68.3	-5.5	1.24 H	153	13.31	49.49
4	15780.00	62.0 PK	74.0	-12.0	1.03 H	254	7.11	54.89
5	15780.00	51.7 AV	54.0	-2.3	1.03 H	254	-3.19	54.89
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	100.0 PK			1.00 V	279	57.46	42.54
2	*5260.00	90.2 AV			1.00 V	279	47.66	42.54
3	#10520.00	66.0 PK	68.3	-2.3	1.38 V	198	16.51	49.49
4	15780.00	62.9 PK	74.0	-11.1	1.02 V	226	8.01	54.89
5	15780.00	49.5 AV	54.0	-4.5	1.02 V	226	-5.39	54.89

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	101.5 PK			1.00 H	233	58.92	42.58
2	*5300.00	91.8 AV			1.00 H	233	49.22	42.58
3	10600.00	56.8 PK	74.0	-17.2	1.24 H	157	7.45	49.35
4	10600.00	45.6 AV	54.0	-8.4	1.24 H	157	-3.75	49.35
5	15900.00	61.5 PK	74.0	-12.5	1.05 H	249	6.41	55.09
6	15900.00	51.3 AV	54.0	-2.7	1.05 H	249	-3.79	55.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	102.5 PK			1.00 V	279	59.92	42.58
2	*5300.00	92.5 AV			1.00 V	279	49.92	42.58
3	10600.00	63.7 PK	74.0	-10.3	1.48 V	210	14.35	49.35
4	10600.00	51.6 AV	54.0	-2.4	1.48 V	210	2.25	49.35
5	15900.00	62.5 PK	74.0	-11.5	1.00 V	212	7.41	55.09
6	15900.00	49.4 AV	54.0	-4.6	1.00 V	212	-5.69	55.09

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	100.3 PK			1.00 H	55	57.71	42.59
2	*5320.00	91.2 AV			1.00 H	55	48.61	42.59
3	5350.00	58.2 PK	74.0	-15.8	1.00 H	55	15.61	42.59
4	5350.00	46.1 AV	54.0	-7.9	1.00 H	55	3.51	42.59
5	10640.00	60.2 PK	74.0	-13.8	1.25 H	189	10.74	49.46
6	10640.00	46.2 AV	54.0	-7.8	1.25 H	189	-3.26	49.46
7	15960.00	61.4 PK	74.0	-12.6	1.06 H	239	6.57	54.83
8	15960.00	51.3 AV	54.0	-2.7	1.06 H	239	-3.53	54.83
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	98.7 PK			1.00 V	282	56.11	42.59
2	*5320.00	89.5 AV			1.00 V	282	46.91	42.59
3	5350.00	55.2 PK	74.0	-18.8	1.00 V	282	12.61	42.59
4	5350.00	43.2 AV	54.0	-10.8	1.00 V	282	0.61	42.59
5	10640.00	64.8 PK	74.0	-9.2	1.77 V	16	15.34	49.46
6	10640.00	51.6 AV	54.0	-2.4	1.77 V	16	2.14	49.46
7	15960.00	62.0 PK	74.0	-12.0	1.00 V	197	7.17	54.83
8	15960.00	49.1 AV	54.0	-4.9	1.00 V	197	-5.73	54.83

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.9 PK	74.0	-15.1	1.53 H	242	16.08	42.82
2	5460.00	46.7 AV	54.0	-7.3	1.53 H	242	3.88	42.82
3	#5470.00	63.6 PK	68.3	-4.7	1.53 H	242	20.75	42.85
4	*5500.00	102.8 PK			1.53 H	242	59.84	42.96
5	*5500.00	93.3 AV			1.53 H	242	50.34	42.96
6	11000.00	61.2 PK	74.0	-12.8	1.26 H	188	11.19	50.01
7	11000.00	46.6 AV	54.0	-7.4	1.26 H	188	-3.41	50.01
8	#16500.00	62.3 PK	68.3	-6.0	1.10 H	240	5.93	56.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.8 PK	74.0	-15.2	1.17 V	264	15.98	42.82
2	5460.00	46.5 AV	54.0	-7.5	1.17 V	264	3.68	42.82
3	#5470.00	63.2 PK	68.3	-5.1	1.17 V	264	20.35	42.85
4	*5500.00	100.8 PK			1.17 V	264	57.84	42.96
5	*5500.00	91.7 AV			1.17 V	264	48.74	42.96
6	11000.00	62.7 PK	74.0	-11.3	1.47 V	246	12.69	50.01
7	11000.00	51.6 AV	54.0	-2.4	1.47 V	246	1.59	50.01
8	#16500.00	62.2 PK	68.3	-6.1	1.00 V	197	5.83	56.37

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	102.5 PK			1.00 H	243	59.36	43.14
2	*5580.00	92.9 AV			1.00 H	243	49.76	43.14
3	11160.00	61.9 PK	74.0	-12.1	1.30 H	200	12.19	49.71
4	11160.00	48.2 AV	54.0	-5.8	1.30 H	200	-1.51	49.71
5	#16740.00	63.1 PK	68.3	-5.2	1.08 H	212	6.68	56.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	100.6 PK			1.50 V	221	57.46	43.14
2	*5580.00	91.2 AV			1.50 V	221	48.06	43.14
3	11160.00	61.5 PK	74.0	-12.5	1.47 V	262	11.79	49.71
4	11160.00	49.8 AV	54.0	-4.2	1.47 V	262	0.09	49.71
5	#16740.00	62.3 PK	68.3	-6.0	1.00 V	210	5.88	56.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	102.3 PK			1.00 H	240	59.06	43.24
2	*5660.00	93.2 AV			1.00 H	240	49.96	43.24
3	11320.00	62.1 PK	74.0	-11.9	1.26 H	188	12.00	50.10
4	11320.00	49.3 AV	54.0	-4.7	1.26 H	188	-0.80	50.10
5	#16980.00	63.0 PK	68.3	-5.3	1.07 H	223	5.82	57.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	100.7 PK			1.49 V	224	57.46	43.24
2	*5660.00	91.7 AV			1.49 V	224	48.46	43.24
3	11320.00	57.2 PK	74.0	-16.8	1.47 V	204	7.10	50.10
4	11320.00	45.7 AV	54.0	-8.3	1.47 V	204	-4.40	50.10
5	#16980.00	63.2 PK	68.3	-5.1	1.01 V	198	6.02	57.18

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	102.7 PK			1.00 H	137	59.43	43.27
2	*5700.00	93.1 AV			1.00 H	137	49.83	43.27
3	**#5725.00**	**67.3 PK**	**68.3**	**-1.0**	**1.00 H**	**246**	**24.00**	**43.30**
4	11400.00	62.3 PK	74.0	-11.7	1.30 H	210	12.38	49.92
5	11400.00	49.8 AV	54.0	-4.2	1.30 H	210	-0.12	49.92
6	#17100.00	63.4 PK	68.3	-4.9	1.10 H	287	6.32	57.08
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	100.5 PK			1.48 V	225	57.23	43.27
2	*5700.00	91.5 AV			1.48 V	225	48.23	43.27
3	#5725.00	66.5 PK	68.3	-1.8	1.88 V	110	23.20	43.30
4	11400.00	59.2 PK	74.0	-14.8	1.22 V	12	9.28	49.92
5	11400.00	46.7 AV	54.0	-7.3	1.22 V	12	-3.22	49.92
6	#17100.00	63.3 PK	68.3	-5.0	1.00 V	200	6.22	57.08

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.4 PK	74.0	-15.6	1.03 H	314	16.10	42.30
2	5150.00	46.2 AV	54.0	-7.8	1.03 H	314	3.90	42.30
3	*5180.00	103.5 PK			1.00 H	132	61.10	42.40
4	*5180.00	93.4 AV			1.00 H	132	51.00	42.40
5	#10360.00	57.1 PK	68.3	-11.2	1.00 H	182	7.89	49.21
6	15540.00	64.2 PK	74.0	-9.8	1.12 H	228	9.10	55.10
7	15540.00	51.2 AV	54.0	-2.8	1.12 H	228	-3.90	55.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.9 PK	74.0	-17.1	1.00 V	272	14.60	42.30
2	5150.00	45.5 AV	54.0	-8.5	1.00 V	272	3.20	42.30
3	*5180.00	101.1 PK			1.00 V	272	58.70	42.40
4	*5180.00	91.7 AV			1.00 V	272	49.30	42.40
5	#10360.00	65.9 PK	68.3	-2.4	1.84 V	25	16.69	49.21
6	15540.00	65.2 PK	74.0	-8.8	1.07 V	221	10.10	55.10
7	15540.00	51.5 AV	54.0	-2.5	1.07 V	221	-3.60	55.10

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.2 PK			1.00 H	130	58.73	42.47
2	*5200.00	92.2 AV			1.00 H	130	49.73	42.47
3	#10400.00	57.2 PK	68.3	-11.1	1.00 H	210	8.37	48.83
4	15600.00	63.2 PK	74.0	-10.8	1.18 H	237	8.23	54.97
5	15600.00	50.7 AV	54.0	-3.3	1.18 H	237	-4.27	54.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	100.1 PK			1.51 V	233	57.63	42.47
2	*5200.00	90.2 AV			1.51 V	233	47.73	42.47
3	#10400.00	65.1 PK	68.3	-3.2	2.00 V	23	16.27	48.83
4	15600.00	63.0 PK	74.0	-11.0	1.13 V	213	8.03	54.97
5	15600.00	49.2 AV	54.0	-4.8	1.13 V	213	-5.77	54.97

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	100.5 PK			1.00 H	131	57.99	42.51
2	*5240.00	91.3 AV			1.00 H	131	48.79	42.51
3	#10480.00	57.5 PK	68.3	-10.8	1.01 H	198	8.11	49.39
4	15720.00	63.4 PK	74.0	-10.6	1.23 H	243	8.70	54.70
5	15720.00	50.8 AV	54.0	-3.2	1.23 H	243	-3.90	54.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	99.5 PK			1.50 V	232	56.99	42.51
2	*5240.00	90.3 AV			1.50 V	232	47.79	42.51
3	#10480.00	65.2 PK	68.3	-3.1	1.99 V	25	15.81	49.39
4	15720.00	63.3 PK	74.0	-10.7	1.02 V	228	8.60	54.70
5	15720.00	49.3 AV	54.0	-4.7	1.02 V	228	-5.40	54.70

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	101.1 PK			1.00 H	133	58.56	42.54
2	*5260.00	93.1 AV			1.00 H	133	50.56	42.54
3	#10520.00	57.2 PK	68.3	-11.1	1.05 H	210	7.71	49.49
4	15780.00	63.3 PK	74.0	-10.7	1.26 H	220	8.41	54.89
5	15780.00	50.8 AV	54.0	-3.2	1.26 H	220	-4.09	54.89
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	100.6 PK			1.00 V	277	58.06	42.54
2	*5260.00	91.1 AV			1.00 V	277	48.56	42.54
3	#10520.00	65.1 PK	68.3	-3.2	1.96 V	32	15.61	49.49
4	15780.00	63.8 PK	74.0	-10.2	1.11 V	231	8.91	54.89
5	15780.00	50.1 AV	54.0	-3.9	1.11 V	231	-4.79	54.89

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	100.8 PK			1.00 H	135	58.22	42.58
2	*5300.00	92.5 AV			1.00 H	135	49.92	42.58
3	10600.00	57.4 PK	74.0	-16.6	1.00 H	189	8.05	49.35
4	10600.00	43.6 AV	54.0	-10.4	1.00 H	189	-5.75	49.35
5	15900.00	63.2 PK	74.0	-10.8	1.22 H	225	8.11	55.09
6	15900.00	50.9 AV	54.0	-3.1	1.22 H	225	-4.19	55.09
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	99.8 PK			1.00 V	277	57.22	42.58
2	*5300.00	90.9 AV			1.00 V	277	48.32	42.58
3	10600.00	60.2 PK	74.0	-13.8	1.20 V	180	10.85	49.35
4	10600.00	46.2 AV	54.0	-7.8	1.20 V	180	-3.15	49.35
5	15900.00	63.7 PK	74.0	-10.3	1.08 V	207	8.61	55.09
6	15900.00	49.5 AV	54.0	-4.5	1.08 V	207	-5.59	55.09

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.5 PK			1.00 H	137	59.91	42.59
2	*5320.00	92.7 AV			1.00 H	137	50.11	42.59
3	5350.00	57.6 PK	74.0	-16.4	1.00 H	235	15.01	42.59
4	5350.00	46.5 AV	54.0	-7.5	1.00 H	235	3.91	42.59
5	10640.00	57.6 PK	74.0	-16.4	1.02 H	197	8.14	49.46
6	10640.00	43.8 AV	54.0	-10.2	1.02 H	197	-5.66	49.46
7	15960.00	63.5 PK	74.0	-10.5	1.26 H	212	8.67	54.83
8	15960.00	51.3 AV	54.0	-2.7	1.26 H	212	-3.53	54.83
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	100.5 PK			1.00 V	277	57.91	42.59
2	*5320.00	91.1 AV			1.00 V	277	48.51	42.59
3	5350.00	58.8 PK	74.0	-15.2	1.00 V	277	16.21	42.59
4	5350.00	45.6 AV	54.0	-8.4	1.00 V	277	3.01	42.59
5	10640.00	59.9 PK	74.0	-14.1	1.17 V	169	10.44	49.46
6	10640.00	45.8 AV	54.0	-8.2	1.17 V	169	-3.66	49.46
7	15960.00	63.8 PK	74.0	-10.2	1.07 V	230	8.97	54.83
8	15960.00	49.7 AV	54.0	-4.3	1.07 V	230	-5.13	54.83

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.0 PK	74.0	-14.0	1.00 H	288	17.18	42.82
2	5460.00	46.8 AV	54.0	-7.2	1.00 H	288	3.98	42.82
3	#5470.00	61.1 PK	68.3	-7.2	1.00 H	288	18.25	42.85
4	*5500.00	101.2 PK			1.00 H	132	58.24	42.96
5	*5500.00	92.0 AV			1.00 H	132	49.04	42.96
6	11000.00	57.2 PK	74.0	-16.8	1.02 H	184	7.19	50.01
7	11000.00	43.7 AV	54.0	-10.3	1.02 H	184	-6.31	50.01
8	#16500.00	63.9 PK	68.3	-4.4	1.32 H	262	7.53	56.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.8 PK	74.0	-15.2	1.00 V	221	15.98	42.82
2	5460.00	45.2 AV	54.0	-8.8	1.00 V	221	2.38	42.82
3	#5470.00	59.0 PK	68.3	-9.3	1.00 V	221	16.15	42.85
4	*5500.00	100.5 PK			1.00 V	221	57.54	42.96
5	*5500.00	90.6 AV			1.00 V	221	47.64	42.96
6	11000.00	59.5 PK	74.0	-14.5	1.13 V	159	9.49	50.01
7	11000.00	45.4 AV	54.0	-8.6	1.13 V	159	-4.61	50.01
8	#16500.00	58.6 PK	68.3	-9.7	1.07 V	232	2.23	56.37

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	101.2 PK			1.00 H	133	58.06	43.14
2	*5580.00	92.8 AV			1.00 H	133	49.66	43.14
3	11160.00	56.8 PK	74.0	-17.2	1.02 H	190	7.09	49.71
4	11160.00	43.6 AV	54.0	-10.4	1.02 H	190	-6.11	49.71
5	#16740.00	64.3 PK	68.3	-4.0	1.21 H	252	7.88	56.42
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	101.2 PK			1.50 V	221	58.06	43.14
2	*5580.00	91.4 AV			1.50 V	221	48.26	43.14
3	11160.00	59.5 PK	74.0	-14.5	1.17 V	144	9.79	49.71
4	11160.00	45.5 AV	54.0	-8.5	1.17 V	144	-4.21	49.71
5	#16740.00	59.1 PK	68.3	-9.2	1.08 V	211	2.68	56.42

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	101.8 PK			1.00 H	136	58.56	43.24
2	*5660.00	93.2 AV			1.00 H	136	49.96	43.24
3	11320.00	56.4 PK	74.0	-17.6	1.07 H	179	6.30	50.10
4	11320.00	43.4 AV	54.0	-10.6	1.07 H	179	-6.70	50.10
5	#16980.00	65.1 PK	68.3	-3.2	1.20 H	242	7.92	57.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	101.5 PK			1.49 V	218	58.26	43.24
2	*5660.00	92.1 AV			1.49 V	218	48.86	43.24
3	11320.00	58.9 PK	74.0	-15.1	1.15 V	152	8.80	50.10
4	11320.00	45.2 AV	54.0	-8.8	1.15 V	152	-4.90	50.10
5	#16980.00	59.3 PK	68.3	-9.0	1.06 V	225	2.12	57.18

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	103.5 PK			1.00 H	130	60.23	43.27
2	*5700.00	93.7 AV			1.00 H	130	50.43	43.27
3	#5725.00	67.0 PK	68.3	-1.3	1.00 H	226	23.70	43.30
4	11400.00	55.8 PK	74.0	-18.2	1.04 H	193	5.88	49.92
5	11400.00	42.8 AV	54.0	-11.2	1.04 H	193	-7.12	49.92
6	#17100.00	65.0 PK	68.3	-3.3	1.23 H	255	7.92	57.08
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	103.2 PK			1.89 V	87	59.93	43.27
2	*5700.00	92.2 AV			1.89 V	87	48.93	43.27
3	#5725.00	66.2 PK	68.3	-2.1	1.87 V	110	22.90	43.30
4	11400.00	59.2 PK	74.0	-14.8	1.12 V	128	9.28	49.92
5	11400.00	45.3 AV	54.0	-8.7	1.12 V	128	-4.62	49.92
6	#17100.00	61.2 PK	68.3	-7.1	1.10 V	325	4.12	57.08

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5145.20	69.3 PK	74.0	-4.7	1.00 H	142	27.02	42.28
2	5145.20	52.9 AV	54.0	-1.1	1.00 H	142	10.62	42.28
3	*5190.00	97.6 PK			1.00 H	137	55.16	42.44
4	*5190.00	88.1 AV			1.00 H	137	45.66	42.44
5	#10380.00	55.2 PK	68.3	-13.1	1.10 H	298	6.18	49.02
6	15570.00	63.9 PK	74.0	-10.1	1.28 H	212	8.86	55.04
7	15570.00	51.5 AV	54.0	-2.5	1.28 H	212	-3.54	55.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	2.00 V	114	21.90	42.30
2	5150.00	50.2 AV	54.0	-3.8	2.00 V	114	7.90	42.30
3	*5190.00	96.5 PK			2.00 V	79	54.06	42.44
4	*5190.00	86.5 AV			2.00 V	79	44.06	42.44
5	#10380.00	65.3 PK	68.3	-3.0	1.10 V	321	16.28	49.02
6	15570.00	63.9 PK	74.0	-10.1	1.03 V	217	8.86	55.04
7	15570.00	50.0 AV	54.0	-4.0	1.03 V	217	-5.04	55.04

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	98.1 PK			1.00 H	132	55.60	42.50
2	*5230.00	88.2 AV			1.00 H	132	45.70	42.50
3	#10460.00	54.8 PK	68.3	-13.5	1.09 H	258	5.55	49.25
4	15690.00	63.8 PK	74.0	-10.2	1.23 H	217	9.13	54.67
5	15690.00	51.5 AV	54.0	-2.5	1.23 H	217	-3.17	54.67
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	95.9 PK			1.84 V	223	53.40	42.50
2	*5230.00	86.8 AV			1.84 V	223	44.30	42.50
3	#10460.00	65.3 PK	68.3	-3.0	1.10 V	312	16.05	49.25
4	15690.00	63.9 PK	74.0	-10.1	1.03 V	224	9.23	54.67
5	15690.00	49.8 AV	54.0	-4.2	1.03 V	224	-4.87	54.67

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	98.9 PK			1.00 H	136	56.35	42.55
2	*5270.00	88.6 AV			1.00 H	136	46.05	42.55
3	#10540.00	55.1 PK	68.3	-13.2	1.05 H	242	5.64	49.46
4	15810.00	63.9 PK	74.0	-10.1	1.18 H	219	8.94	54.96
5	15810.00	51.9 AV	54.0	-2.1	1.18 H	219	-3.06	54.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5270.00	96.4 PK			1.83 V	221	53.85	42.55
2	*5270.00	87.1 AV			1.83 V	221	44.55	42.55
3	#10540.00	65.2 PK	68.3	-3.1	1.08 V	305	15.74	49.46
4	15810.00	63.2 PK	74.0	-10.8	1.09 V	219	8.24	54.96
5	15810.00	49.4 AV	54.0	-4.6	1.09 V	219	-5.56	54.96

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	97.5 PK			1.00 H	137	54.92	42.58
2	*5310.00	87.7 AV			1.00 H	137	45.12	42.58
3	5352.00	66.9 PK	74.0	-7.1	1.00 H	226	24.30	42.60
4	5352.00	52.4 AV	54.0	-1.6	1.00 H	226	9.80	42.60
5	10620.00	63.4 PK	74.0	-10.6	1.27 H	161	14.00	49.40
6	10620.00	51.1 AV	54.0	-2.9	1.27 H	161	1.70	49.40
7	15930.00	64.1 PK	74.0	-9.9	1.16 H	212	9.14	54.96
8	15930.00	52.3 AV	54.0	-1.7	1.16 H	212	-2.66	54.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	96.8 PK			1.24 V	298	54.22	42.58
2	*5310.00	86.1 AV			1.24 V	298	43.52	42.58
3	5350.00	65.2 PK	74.0	-8.8	2.00 V	114	22.61	42.59
4	5350.00	51.2 AV	54.0	-2.8	2.00 V	114	8.61	42.59
5	10620.00	58.8 PK	74.0	-15.2	1.11 V	112	9.40	49.40
6	10620.00	44.9 AV	54.0	-9.1	1.11 V	112	-4.50	49.40
7	15930.00	63.8 PK	74.0	-10.2	1.13 V	237	8.84	54.96
8	15930.00	49.8 AV	54.0	-4.2	1.13 V	237	-5.16	54.96

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.1 PK	74.0	-12.9	1.00 H	233	18.28	42.82
2	5460.00	48.7 AV	54.0	-5.3	1.00 H	233	5.88	42.82
3	#5470.00	67.2 PK	68.3	-1.1	1.00 H	227	24.35	42.85
4	*5510.00	97.4 PK			1.00 H	137	54.42	42.98
5	*5510.00	88.0 AV			1.00 H	137	45.02	42.98
6	11020.00	64.3 PK	74.0	-9.7	1.31 H	197	14.35	49.95
7	11020.00	52.0 AV	54.0	-2.0	1.31 H	197	2.05	49.95
8	#16530.00	55.8 PK	68.3	-12.5	1.05 H	198	-0.83	56.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	57.8 PK	74.0	-16.2	1.00 V	133	14.98	42.82
2	5460.00	46.5 AV	54.0	-7.5	1.00 V	133	3.68	42.82
3	#5470.00	67.1 PK	68.3	-1.2	2.00 V	88	24.25	42.85
4	*5510.00	96.7 PK			1.91 V	28	53.72	42.98
5	*5510.00	86.4 AV			1.91 V	28	43.42	42.98
6	11020.00	58.9 PK	74.0	-15.1	1.11 V	101	8.95	49.95
7	11020.00	45.0 AV	54.0	-9.0	1.11 V	101	-4.95	49.95
8	#16530.00	62.8 PK	68.3	-5.5	1.09 V	223	6.17	56.63

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	99.2 PK			1.00 H	133	56.12	43.08
2	*5550.00	89.1 AV			1.00 H	133	46.02	43.08
3	11100.00	64.6 PK	74.0	-9.4	1.26 H	208	14.90	49.70
4	11100.00	51.9 AV	54.0	-2.1	1.26 H	208	2.20	49.70
5	#16650.00	64.2 PK	68.3	-4.1	1.15 H	210	7.30	56.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	96.8 PK			1.84 V	221	53.72	43.08
2	*5550.00	87.5 AV			1.84 V	221	44.42	43.08
3	11100.00	59.3 PK	74.0	-14.7	1.00 V	96	9.60	49.70
4	11100.00	45.3 AV	54.0	-8.7	1.00 V	96	-4.40	49.70
5	#16650.00	63.1 PK	68.3	-5.2	1.12 V	239	6.20	56.90

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	98.7 PK			1.42 H	133	55.45	43.25
2	*5670.00	89.4 AV			1.42 H	133	46.15	43.25
3	#5725.00	62.5 PK	68.3	-5.8	1.42 H	233	19.20	43.30
4	11340.00	64.0 PK	74.0	-10.0	1.25 H	217	13.94	50.06
5	11340.00	51.4 AV	54.0	-2.6	1.25 H	217	1.34	50.06
6	#17010.00	64.9 PK	68.3	-3.4	1.28 H	200	7.62	57.28
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	96.9 PK			1.85 V	266	53.65	43.25
2	*5670.00	87.7 AV			1.85 V	266	44.45	43.25
3	#5725.00	61.5 PK	68.3	-6.8	1.85 V	266	18.20	43.30
4	11340.00	59.3 PK	74.0	-14.7	1.03 V	90	9.24	50.06
5	11340.00	45.4 AV	54.0	-8.6	1.03 V	90	-4.66	50.06
6	#17010.00	63.5 PK	68.3	-4.8	1.10 V	249	6.22	57.28

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP 40	100036	Dec. 14, 2011	Dec. 13, 2012
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-SP-AR	GTA81158-2	Jan. 19, 2012	Jan. 18, 2013

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Sep. 21, 2012

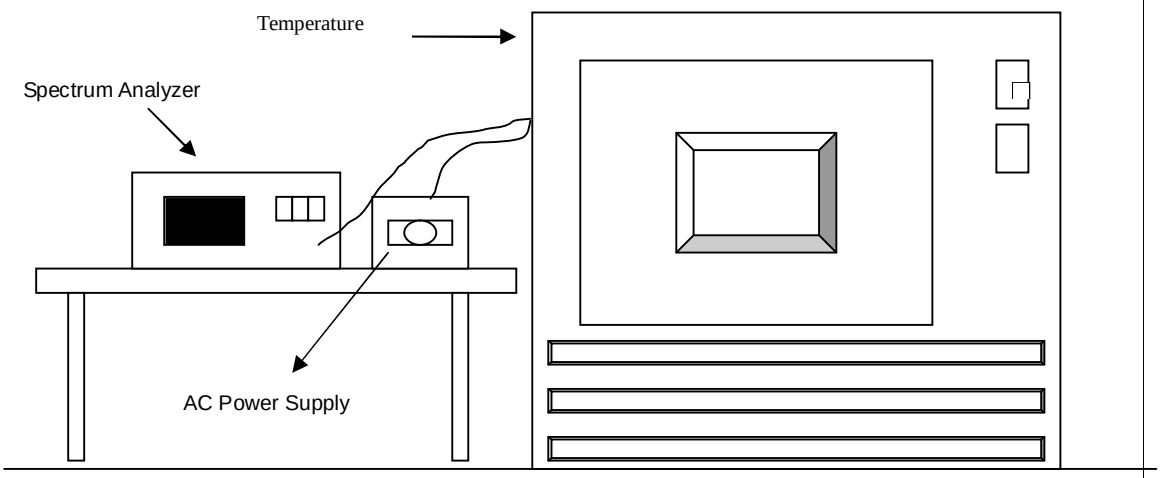
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 TEST RESULTS

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
50	120	5320.0005	0.0940	5320.0025	0.4699	5320.0026	0.4887	5320.0021	0.3947
40	120	5319.989	-2.0677	5319.9901	-1.8609	5319.9942	-1.0902	5319.9962	-0.7143
30	120	5319.9949	-0.9586	5319.9981	-0.3571	5319.9885	-2.1617	5319.9938	-1.1654
20	120	5320.0098	1.8421	5320.0168	3.1579	5320.0103	1.9361	5320.0164	3.0827
10	120	5319.9774	-4.2481	5319.9819	-3.4023	5319.9804	-3.6842	5319.9819	-3.4023
0	120	5319.9721	-5.2444	5319.9754	-4.6241	5319.9773	-4.2669	5319.9702	-5.6015
-10	120	5320.0035	0.6579	5319.9961	-0.7331	5319.9941	-1.1090	5319.9939	-1.1466
-20	120	5320.0065	1.2218	5320.0113	2.1241	5320.004	0.7519	5320.012	2.2556
-30	120	5319.9993	-0.1316	5319.9975	-0.4699	5319.9993	-0.1316	5319.9976	-0.4511

FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
20	138	5320.0101	1.8985	5320.0169	3.1767	5320.0112	2.1053	5320.0182	3.4211
	120	5320.0098	1.8421	5320.0168	3.1579	5320.0103	1.9361	5320.0164	3.0827
	102	5320.0108	2.0301	5320.0174	3.2707	5320.011	2.0677	5320.0175	3.2895

4.7 CONDUCTED EMISSION MEASUREMENT

4.7.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 12, 2012	Mar.11, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 06, 2012	Sep. 05, 2013
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 08,2012	June 07,2013
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 28, 2012	Aug. 27, 2013
50 ohms Terminator	50	EMC-3	Sep. 25, 2012	Sep. 24, 2013
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Sep. 26, 2012

4.7.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.

b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

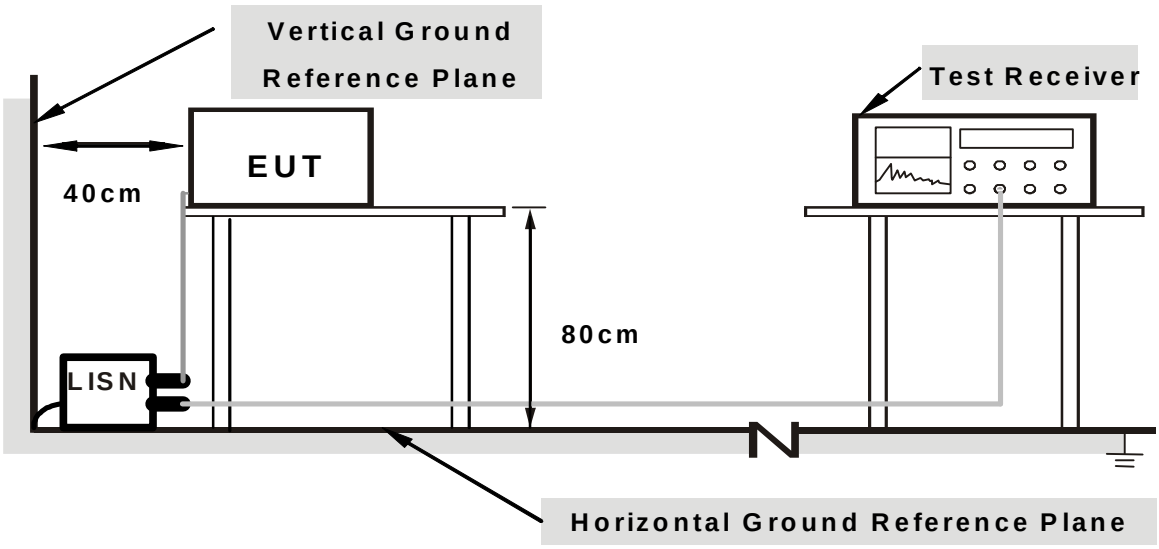
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was not recorded.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.7.6 EUT OPERATING CONDITIONS

Same as the 4.6.6

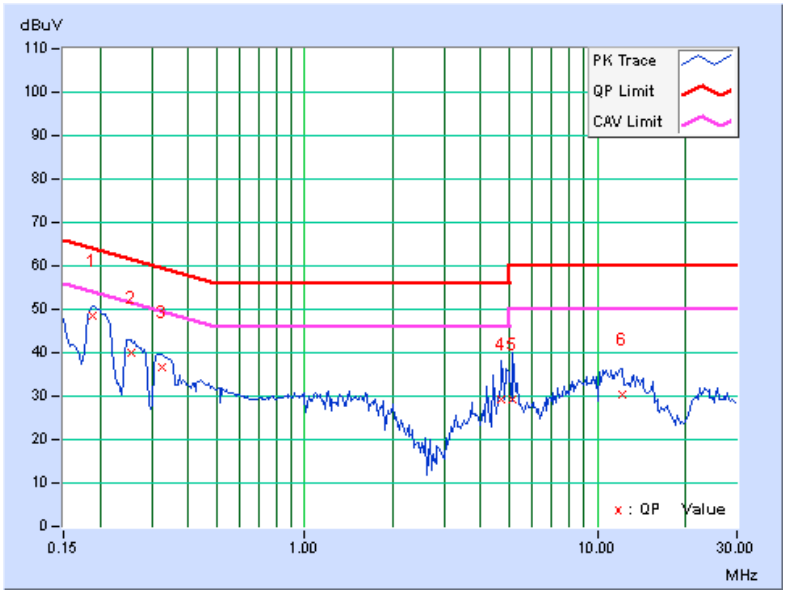
4.7.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.10	48.42	35.12	48.52	35.22	64.08	54.08	-15.56	-18.86
2	0.25547	0.11	39.80	27.26	39.91	27.37	61.58	51.58	-21.67	-24.21
3	0.32578	0.13	36.43	21.82	36.56	21.95	59.56	49.56	-23.00	-27.61
4	4.71875	0.34	28.76	14.26	29.10	14.60	56.00	46.00	-26.90	-31.40
5	5.16016	0.36	28.91	16.53	29.27	16.89	60.00	50.00	-30.73	-33.11
6	12.16406	0.60	29.62	23.42	30.22	24.02	60.00	50.00	-29.78	-25.98

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

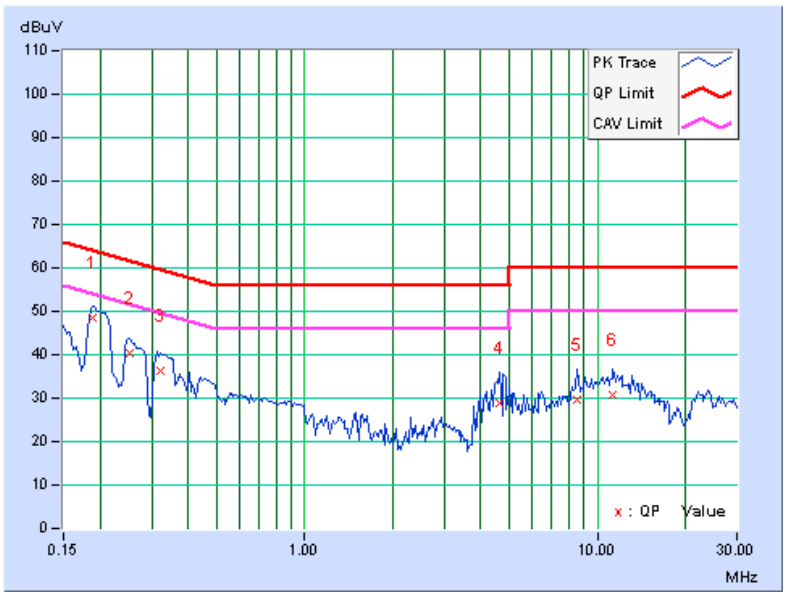


PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18906**	**0.09**	**48.52**	**35.10**	**48.61**	**35.19**	**64.08**	**54.08**	**-15.47**	**-18.89**
2	0.25156	0.10	40.45	25.84	40.55	25.94	61.71	51.71	-21.15	-25.76
3	0.32188	0.12	36.16	21.55	36.28	21.67	59.66	49.66	-23.38	-27.99
4	4.64453	0.25	28.49	15.60	28.74	15.85	56.00	46.00	-27.26	-30.15
5	8.54688	0.37	29.19	21.70	29.56	22.07	60.00	50.00	-30.44	-27.93
6	11.30078	0.44	30.16	22.63	30.60	23.07	60.00	50.00	-29.40	-26.93

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



5.PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
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Hwa Ya EMC/RF/Safety/Telecom Lab:
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

7.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

--- END ---